DTC-P7

SERVICE MANUAL

AEP Model
UK Model

SPECIFICATIONS

Tape	Digital audio tape
Recording head	Rotary head
Recording time	Standard: 120 minutes. Long-play mode: 240 minutes (with DT-120)
Tape speed	Standard: 8.15 mm/s, Long play mode: 4.075 mm/s
Drum rotation	Standard: 2,000 rpm, Long-play mode: 1,000 rpm
Error correction	Double Read Solomon code

Tape

Track pitch	13.6 µm (20.4 µm)
Sampling frequency	48 kHz, 44.1 kHz, 32 kHz
Modulation system	8–10 Modulation
Transfer rate	2.46 Mbit/sec.
Number of channel	2 channels, stereo
D/A conversion (Quantization)	Standard: 16-bit linear Long-play mode: 12-bit non-linear
Frequency response	Standard: 2–22,000 Hz (±0.5 dB) Long-play mode: 2–14,500 Hz (±0.5 dB)
Signal to noise ratio	Standard: more than 88 dB Long-play mode: more than 88 dB
Dynamic range	Standard: more than 88 dB Long-play mode: more than 88 dB
Total harmonic distortion	Standard: less than 0.0065% (1 kHz) Long-play mode: less than 0.08% (1 kHz)

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	DATM-101

Wow and flutter — Below measurable limit (±0.001% W. PEAK)

Input

	Jack type	Impedance	Rated input level
LINE IN	phono jack	47 kohms	–4 dBs
DIGITAL IN	phono jack	75 ohms	0.5 Vp-p, 20%
DIGITAL IN	optical jack	—	—

Output

	Jack type	Impedance	Rated output	Load impedance
LINE OUT	phono jack	470 ohms	–4 dBs	More than 10 kohms
PHONES	stereo phone jack	220 ohms	0.6 mW	32 ohms

DIGITAL OUT (optical jack): wavelength 660 nm

– continued on next page –

MICROFILM

DIGITAL AUDIO TAPE DECK

SONY®

General

Power requirements	220 - 230 V AC, 50/60 Hz (AEP, Germany models) 240 V AC, 50 Hz (UK model)
Power consumption	24 W
Dimensions	Approx. 225 x 95 x 220 mm (w/h/d) (17 x 5 x 13 7/8 inches)
Weight	Approx. 3 kg (6 lb 10 oz)

Remote commander (supplied)

Remote control system	Infrared control
Power requirements	3V DC, with two size AA (R6) batteries
Dimensions	Approx. 63 x 19 x 175 mm (w/h/d) (2 1/2 x 3/4 x 7 inches)
Weight	Approx. 130 g (4 oz) incl. batteries.

Supplied accessories

Sony batteries SUM-3(NS) (2)
Audio connecting cords (2 phono plugs - 2 phono plugs, stereo for line inputs and outputs) (2)
AU BUS cord (1)

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

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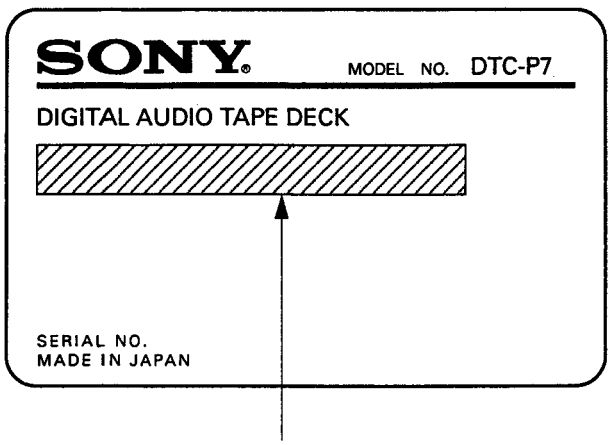
MODEL IDENTIFICATION

– SPECIFICATION LABEL –



AEP, Germany model : AC 220-230V~ 50/60Hz
UK model : AC 240V~ 50/60Hz

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

ADVERSEL !

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Lever det brugte batteri tilbage til leverandcren.

ADVARSEL

Lithiumbatteri – Eksplosjonsfare.
Ved utskifting benyttes kun batteri som
anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleveranderen.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ
som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Overview of the Digital Audio Tape Deck

Serial Copy Management System
This unit utilizes the serial copy management system that permits digital-to-digital recording for one generation. You can record CD sound or other digital formats through a digital-to-digital connection. (See page 44.)

Date Function Automatically Memories the Recording Date and Time
The year, month, day, day of the week, hour, minute and second are automatically memorized in the subcode area during recording, so that during playback you can display this data to check when the tape was recorded. This function is especially convenient when recording live performances, etc.

Three Sampling Frequencies
Recording/playback can be done with three sampling frequencies (48 kHz, 44.1 kHz and 32 kHz).
48 kHz: For analog and digital input signals in a standard mode.
44.1 kHz: For compact disc and pre-recorded DAT tape.
32 kHz: For analog input signals in a long-play mode.

Long Play Mode
This unit can operate in a long-play mode. Analog input signals can be recorded or playback for up to four consecutive hours when the DT-120 DAT cassette tape is used. The sampling frequency will be 32 kHz in the long-play mode.

Visible Cassette Loading
You can view the tape operation through the lid of the cassette compartment. Due to a revolutionary new transport mechanism, cassette loading time has been significantly reduced.

Excellent Sound Quality
- **1-bit A/D converter**
  For the A/D converter section which converts analog input signals to digital signals, the unit employs a 1-bit A/D converter which theoretically generates no zero-cross distortion for a clear, elegant sound quality.
- **Pulse D/A converter**
  Superior playback performance is achieved with a 1-bit D/A converter.

Rich Variety of Subcode Information
This unit can record subcode information such as Start IDs, program numbers, Skip IDs, and absolute time data, enabling you to quickly locate tunes and display the playback time in the same manner as when playing compact discs.

Post Edit Recording of sub Codes
You can record or rewrite the following sub codes after the audio signal recording has been completed.
Start ID: Signifies the beginning of a selection.
Program number: Gives a number to the selection.
Skip ID: Signifies the beginning of a portion to be skipped.
End ID: Signifies the end position of recording/playback.
Since sub codes are written on the tape separately from audio signals, the audio signals are not affected.

5 x 7 dot Matrix Display
The 5 x 7 dot Matrix display window enables you to recognize an operation mode at a glance.

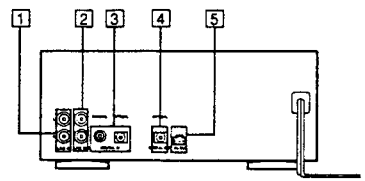
Enjoy this unit with other component system
With the AU BUS jack, this unit can be connected to the other component system, and the auto function* and timer play will be available.

*The auto function automatically sets the system amplifier to the DAT mode when this unit enters playback mode.

Connections

This section describes about the analog connection, digital connection and the connection with the component system.

Rear Panel Jacks



1 LINE IN (line input) jacks (phono jack)
Connect to the recording outputs of an amplifier. Signals supplied by the amplifier can be recorded using the sampling frequency of 48 kHz in the standard play mode or 32 kHz in the long play mode.

2 LINE OUT (line output) jacks (phono jack)
Connect to the DAT or tape inputs of an amplifier. The playback signal of this deck will be output.

3 COAXIAL/OPTICAL DIGITAL IN (digital input) jacks (coaxial phono jack/optical jack)
Connect to the digital outputs of an amplifier having a built-in D/A converter or other digital source, such as a CD player for digital-to-digital recording.
When the OPTICAL DIGITAL IN jack is connected, set the INPUT selector to the DIGITAL 1 position and when the COAXIAL DIGITAL IN jack is connected, set the INPUT selector to the DIGITAL 2 position.

4 OPTICAL DIGITAL OUT (digital output) jack (optical jack)
Connect to the digital inputs of an amplifier having a built-in D/A converter or another DAT deck, for playback of a DAT cassette or digital-to-digital recording.

5 AU BUS jack
Connect to the AU BUS jack of a Sony amplifier or receiver to perform the system control.

Notes on connection
- Use the connecting cords specified in the illustrations.
- Turn off the power for all equipments before making connections.
- Be sure to insert the plugs firmly into the jacks. Loose connections may cause hum and noise. When unplugging, grasp the plug and not the cord.

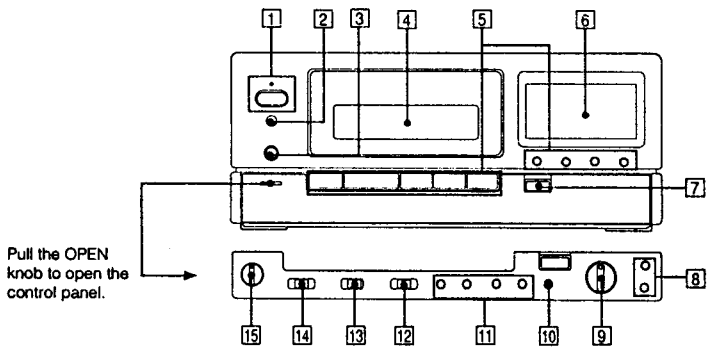
Notes on the optical cable
- Do not bend the cord. When the cord is not used, curl it with a diameter of more than 15 cm (5 7/8 inches).
- Do not use it under high temperatures.
- When the optical cable is not connected, cover the OPTICAL IN/OUT jacks with the supplied caps.

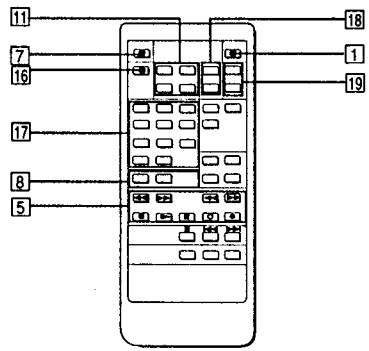
Note on sound signals
When connecting an optical cable to the DIGITAL IN/DIGITAL OUT jacks, sound signals (L/R) are transmitted together through the cable.

Identifying Parts and Controls

This section describes the names and functions of each parts of this unit. Before operating this unit, please read carefully.

Front Panel/Remote Commander





1 POWER switch and ON/STANDBY indicator
Turns the power on and off. When the power is off, the STANDBY indicator lights up.

2 Remote sensor
Receives the signal from the remote commander.

3 HEADPHONES jack (Stereo minijack)
Insert the headphones plug to this jack.

4 Cassette compartment
Insert a cassette with the window side up and the safety tab facing you.

5 Tape operating buttons
- ■ **(stop):** Press to stop recording or playback.
- ▷ **(play):** Press to play back the tape.
- **IIPAUSE (pause):** Press to stop for a moment during recording or playback. To restart recording or playback, press this button again or press the ▷ button. If the unit is left in the pause mode for about 10 minutes, it will automatically be released and the deck will enter the stop mode. To restart recording or playback from the stop mode, press the ●REC or ▷ button respectively.
- **OMUTE (record muting):** Press to insert a sound-muted portion (space).
- **●REC (recording):** Press to enter the record-pause mode. To start recording, press the IIPAUSE or ▷ button.
- **⏮/⏭ (AMS):** Press to locate the beginning of the *selection during playback.*
- **◄◄/►► (rewind/review, fast-forward/cue):** In the stop mode, press to rewind/fast-forward the tape. During playback, press to rewind or fast-forward the tape while listening to the sound.

6 Display window

7 ▲OPEN/CLOSE button
Press to open or close the cassette compartment.

8 COUNTER buttons
- **MODE:** Selects the counter display in the display window among the linear counter (tape running time), absolute time, elapsed time of the selection, and total remaining time of tape. Each time you press the button, the display changes sequentially.
- **RESET:** Resets the linear counter to "0M 00S".

9 REC LEVEL (recording level) control
Adjust the recording level for the analog input signals. When recording digital signals, it is not necessary to adjust the recording level.

10 CLOCK SET button
Press to adjust the time of the clock built in this unit. In this mode, the ◄◄ and ►► buttons function as the + and – buttons respectively.

11 START ID buttons
- **AUTO:** Press to turn on and off the AUTO indicator. When the AUTO indicator is lit, the start ID will automatically be written during recording. When the AUTO indicator is not lit, press the START ID WRITE button at the point where you want to write a start ID.
- **RENUMBER:** Press to renumber all programs on the tape. When only the start IDs are written, pressing this button will insert the proper program numbers beginning with "1". The tape will rewind and start from the beginning to accomplish this function.
- **WRITE:** Press to write the start ID at the desired point during recording or playback.
- **ERASE:** Press to erase a start ID. When a start ID and a program number are written on the tape, both codes are simultaneously erased by pressing this button.

12 INPUT selector
Set according to the signal to be recorded.
- **ANALOG:** For recording from the equipment connected to the LINE IN jacks.
- **DIGITAL 1/DIGITAL 2:** For recording from the eqipment connected to the DIGITAL IN jack.

13 REC MODE selector
Normally set to the STANDARD position. When this selector is set to the LONG position, you can record analog input signals or digital signals with 32 kHz in the longplay mode.

14 TIMER switch
Normally set to the OFF position. When recording or playing back at the desired time using a commercially available audio timer or the timer function of the component system, set to the REC position or the PLAY position respectively.

15 PHONE LEVEL control
The PHONE LEVEL control adjusts the headphones volume level.

16 DISPLAY MODE button
Changes the display mode. (Refer to page 16.)

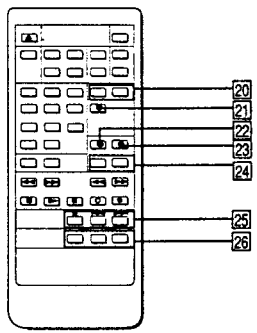
17 Music select buttons
- **Numeric buttons (0–9):** Designate the desired program number to be played back before starting playback. Designate the desired number in the record-pause mode, the program number is written consecutively from the designated number.
- **CLEAR:** Use to cancel the program number which has been mistakenly entered.

18 SKIP ID buttons
- **WRITE:** Press at the beginning of the portion you may wish to skip later. A skip ID will be written from the point where you pressed this button.
- **ERASE:** Press to erase the nearest skip ID which is before the current position.

19 END ID buttons
- **WRITE:** Press to write the ID signifying the end of playback or recording.
- **ERASE:** Press to erase the end ID.

Identifying Parts and Controls

Front Panel/Remote Commander



20 RMS play buttons

ENTER: To program the selections in a desired order, press this button after pressing the numeric buttons.
CHECK: Press to check the programmed contents.

21 REPEAT 1/ALL button

Press to play a desired portion repeatedly. Each time you press the button, the indicatior changes as follows:
REPEAT 1 → REPEAT ALL → off

22 MUSIC SCAN button

Use this feature to listen to the beginning of each selection successively.

23 SKIP PLAY button

Press to activate the skip ID code function. The portion of the tape previously marked will be skipped.

24 DATE buttons

RECORDED: Press to display the recording day of the tape being played.
PRESENT: Press to display the current time.
Each time the RECORDED or PRESENT button is pressed, day, month and year display, the day of the week display or hour, minute and second display is switched sequencially.

25 CD operation buttons

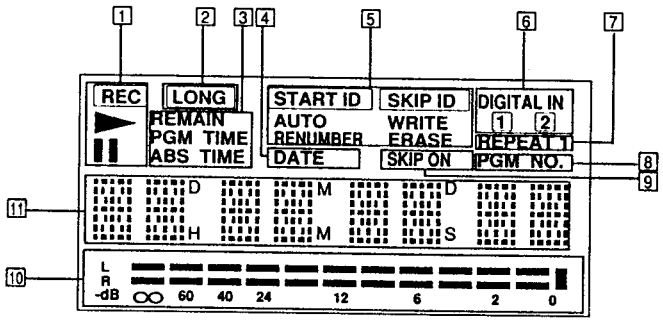
Operative only for the Sony CD player equipped with a remote commander.
II (pause): Press this button twice to start playback. To enter the pause mode, press this button once.
⏮/⏭ (AMS): Press to locate the desired selection on the Compact Disc during playback or in the stop mode.

26 CD SYNCHRO (CD synchronized recording) buttons

(The playback of the Sony CD player equipped with a remote commander and the recording of the DAT deck can be performed simultaneously.)
STANDBY: Press to set the unit to the record-standby mode.
START: Press to start recording of the DAT deck and then playback of the CD player.
STOP: Press to stop the DAT deck recording and the CD player playback.

Identifying Parts and Controls

Display Window



When the power is turned on, the display window is also turned on. However the peak level meter display can be turned on and off alternatively during recording or playback each time the DISPLAY MODE button is pressed.

1 Tape operation indicators

REC: Lights during recording or in the record-pause mode.
⊳: Lights during recording or playback. It also lights in the record-pause mode or in the play-pause mode.
II: Lights in the record-pause mode or in the play-pause mode.

2 LONG play mode indicator

Lights when recording or playback is being performed in the long play mode.

3 REMAIN (remaining time): Lights when the counter shows the remaining time of the tape.
PGM TIME (program time): Lights when the counter shows the elapsed time of the current selection.
ABS TIME (absolute time) indicator: Lights when the counter shows the elapsed time from the beginning of the tape.

4 DATE indicator

Lights when pressing the RECORDED button to display the recording day of the tape being played. Flashes when pressing the PRESENT button to display the current time.

5 ID code indicators

START ID indicator: Flashes when writing (for 9 or 18 seconds) or erasing a start ID code, and lights when the start ID is detected during playback.
SKIP ID indicator: Lights when writing (for 1 or 2 seconds), erasing a skip ID code or when the skip ID is detected during playback.
AUTO: Lights when the AUTO button is pressed to write the start ID automatically.
RENUMBER: Lights when the RENUMBER button is pressed to renumber the program numbers or when shifting the start ID and program number position.
WRITE: Lights or flashes when writing the start ID, skip ID or end ID.
ERASE: Lights or flashes when erasing the start ID, skip ID or end ID.
AUTO RENUMBER: Lights when renumbering program numbers automatically.

6 DIGITAL IN indicator

The DIGITAL IN 1 or DIGITAL IN 2 indicator lights according to the position of the INPUT selector. No indicator lights when the INPUT selector is set to the ANALOG position.

7 REPEAT indicators

REPEAT 1: Lights when a desired selection is played back repeatedly.
REPEAT: Lights when all the selections are played back repeatedly.

8 PGM NO. indicator

Shows the program number of the selection being played. When programming the desired selection in the RMS operation (page 40), the display shows the step number of the programmed selection.

9 SKIP ON indicator

When this indicator is lit during playback, the portion marked by the skip ID is skipped and playback continues from the next start ID.

10 Peak level meters

Indicate the level of the audio signal being recorded during recording, and the peak values of the audio signal recorded on the tape during playback.
When the rightmost indicator lights, the peak level is over.

11 Counter indicator

Indicates the tape running time, absolute time, elapsed time of the current selection, remaining time or recording day. Each time the COUNTER MODE button is pressed, the display is changed.

The following indicators are also displayed at this area.

RMS (Random Music Sensor)
When programming the desired selections in the RMS operation (page 40), the display shows the program contents.
M. (Music) SCAN
Flashes when searching for the beginning of each selection in music search mode.
M. S (Music Scan) OFF
Displayed momentarily and then goes off when the music scan mode is cancelled.
SKIP ON
Displayed when the SKIP PLAY button is pressed.
SKIP OFF
Displayed when the SKIP PLAY mode is cancelled.
REPEAT 1/REPEAT
REPEAT 1: Displayed when a selection is played repeatedly.
REPEAT: Displayed when all selections are played repeatedly.
Sampling frequency (48 kHz, 44.1 kHz or 32 kHz)
Shows the corresponding sampling frequency while the ⊳ button is pressed during playback or recording.
CAUTION
Displayed when moisture condensation occurs. If this happens, the deck stops functioning automatically. (page 4.)
PROH (Prohibit)
Displayed when recording the digital signal with the copy prohibit code. In this case, record with the LINE IN jacks.

Clock Setting

This unit employs a built-in clock to keep track of the current date and time. Once you set the date and time, this information will be recorded on the tape along with the audio signal during recording. This function is very convenient because it allows you to check when the tape was recorded when playing the tape later.

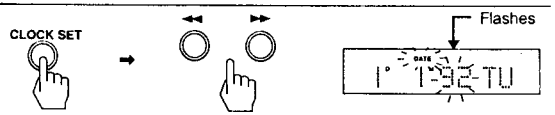
Setting the date and time

Example: Setting the clock to 10:30:00 AM, July 4, 1992 (Saturday)

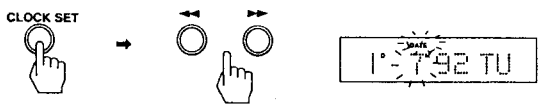
Setting the day

1 Display the date.

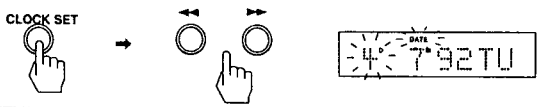
2 Set the year.



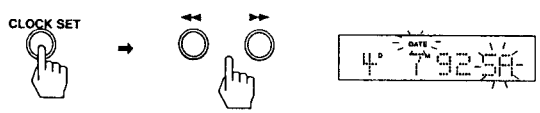
3 Set the month.



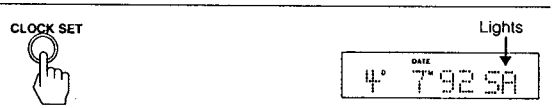
4 Set the day.



5 Set the day of the week.



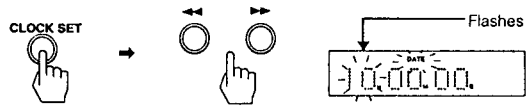
6 Complete the setting procedure.



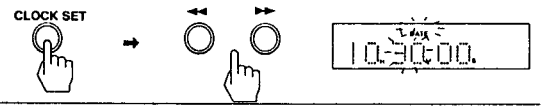
Setting the time

1 Display the time.

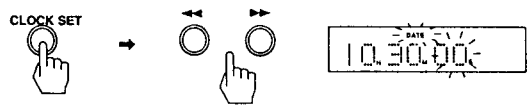
2 Set the hour.



3 Set the minutes.



4 Set the seconds to 0.



5 Start the clock simultaneously with the signal from a timecast (telephone, etc.).

To confirm the date or time
Press the PRESENT button to display the date, the day of the week or time. When pressing the PRESENT button once, the day and the day of the week are displayed, when pressing it twice, the time is displayed. To return to the original counter display, press the COUNTER MODE button.

Time display
The time is displayed in 24-hour format.
Midnight and noon are displayed as follows:
Midnight: 0:00
Noon: 12:00

Built-in clock
This unit's built-in clock operates using a quartz oscillator, and time variations caused by changes in temperature, etc., may accumulate. For precise recording of hour, minute, and second data by the built-in date function, it is recommended that you set the clock once a week.

Precautions when setting the clock
- Set the clock while the tape is stopped.
- Although this unit's clock automatically adjusts for leap years and long and short months, do not enter a date which does not exist.

The day of the week is displayed as follows.

Sunday	SU
Monday	MO
Tuesday	TU
Wednesday	WE
Thursday	TH
Friday	FR
Saturday	SA

Note
This unit uses a back-up battery to keep the clock running when the power is turned off. The life of the battery under normal use is approximately five years. When the battery starts to run down, the clock will stop operating normally. When this occurs, have the battery replaced at your dealer or nearest Sony Service Center (a battery replacement fee is required).

SECTION 2
DISASSEMBLY

- **Remove the following devices shown by ❶, etc. In the order of the numbers.**

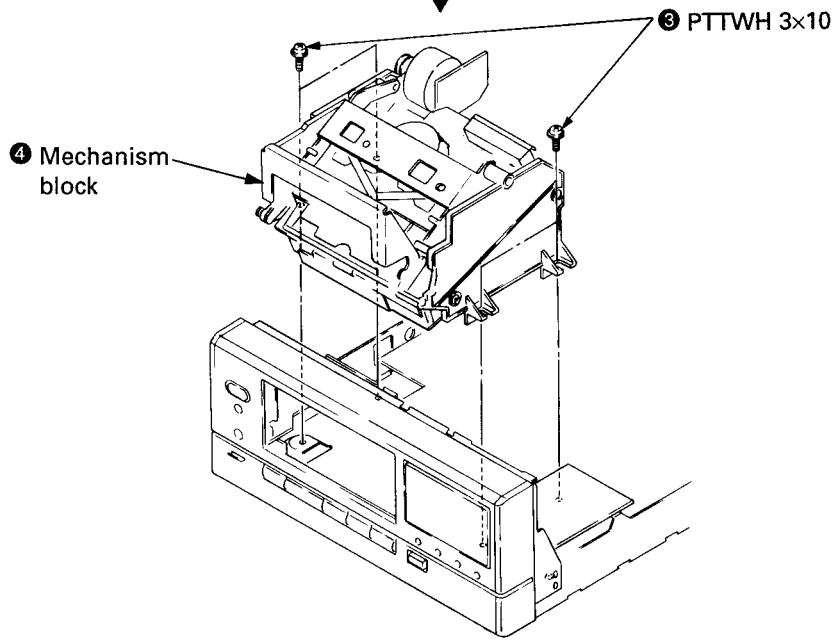
[CASE]

Unscrew the four case attachment screws and remove the case.

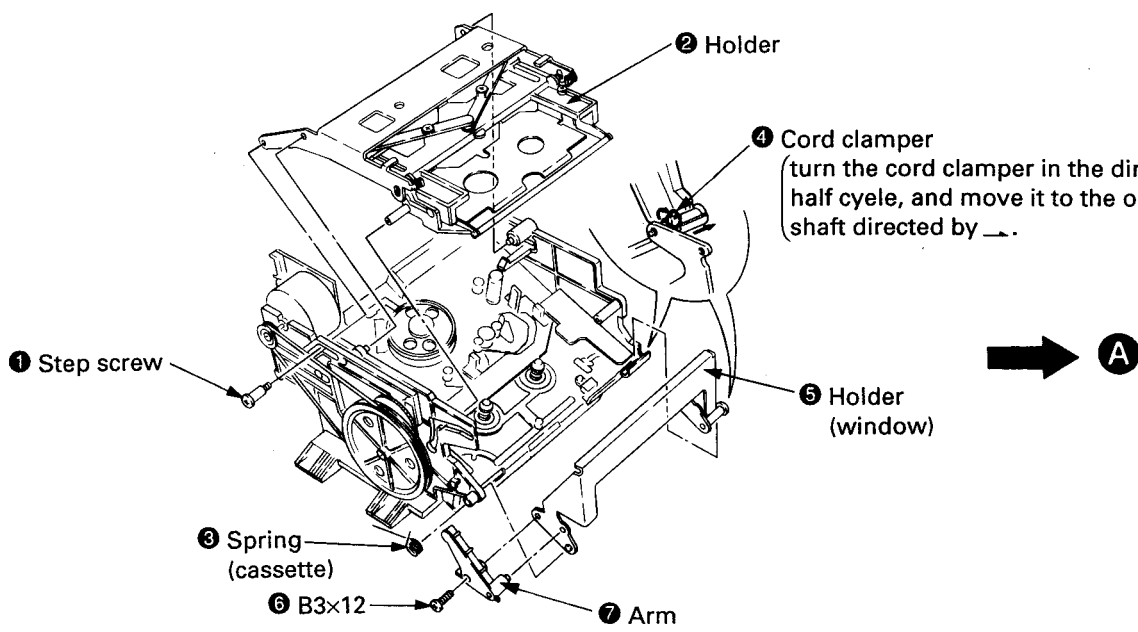
[CASSETTE WINDOW]

❶ Press the OPEN/CLOSE switch to effect LOADING OUT STATE (if power is not supplied) rotate the pulley in the left side of the Mechanism Deck counterclockwise.)
❷ Remove the cassette by lifting the window up.

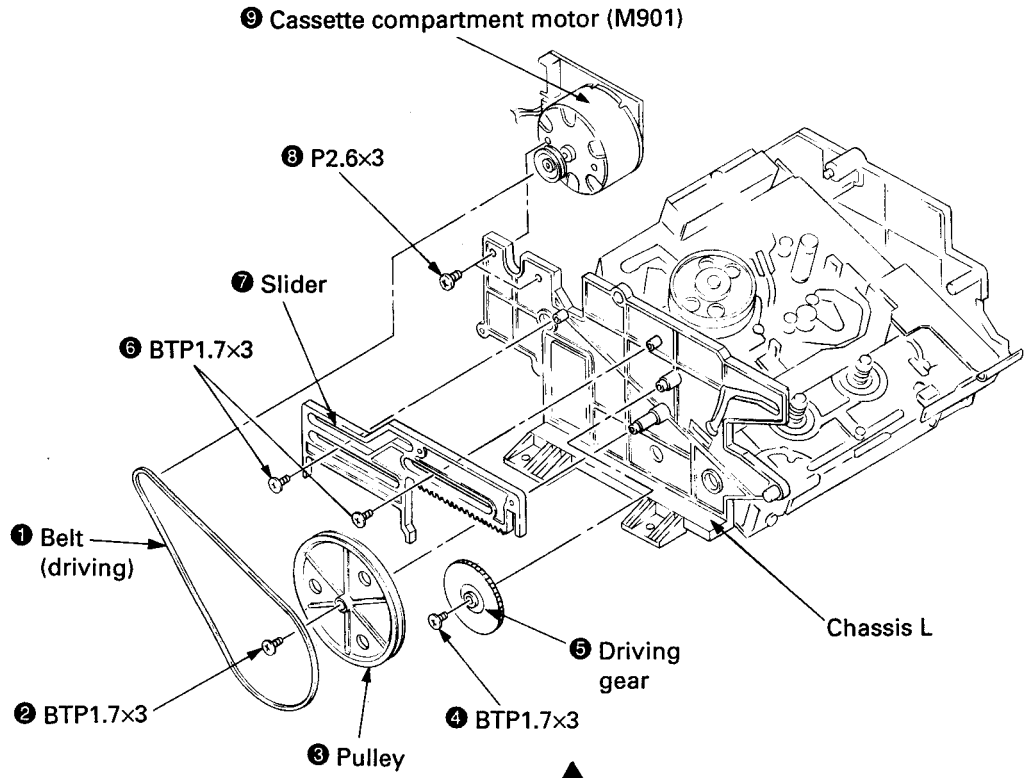
MECHANISM BLOCK



HOLDER

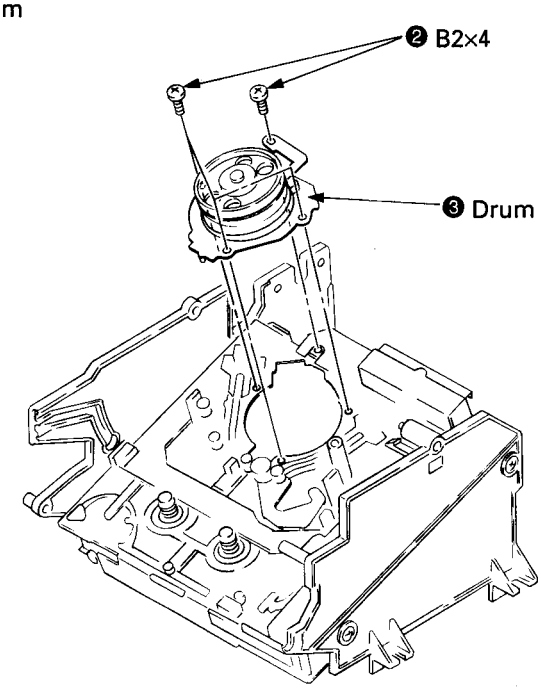


CASSETTE COMPARTMENT MOTOR (M901), PULLEY, GEAR (CAM) AND SLIDER



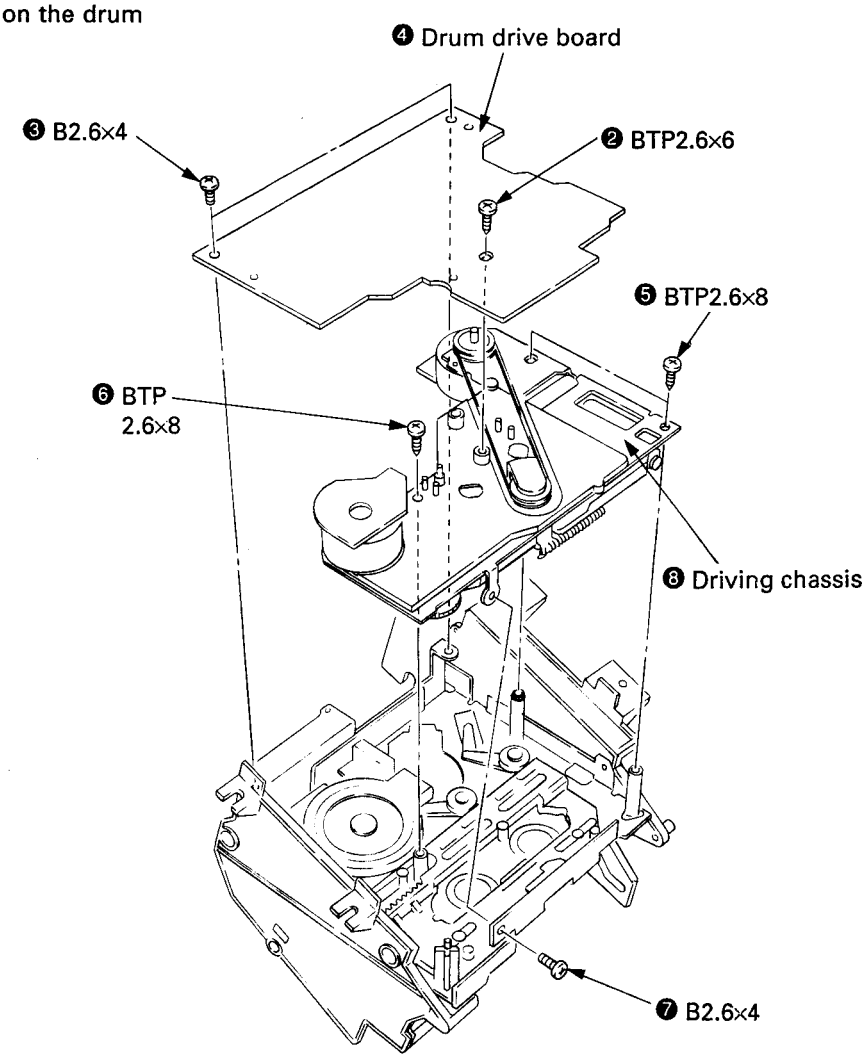
DRUM

❶ Remove the drum lead wires from connectors.

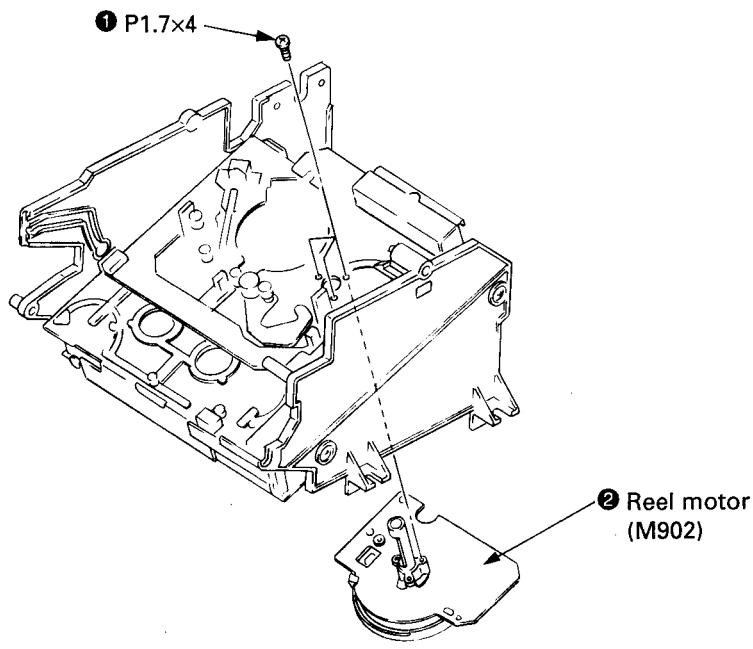


DRUM DRIVE BOARD, DRIVING CHASSIS

❶ Remove the lead wires from connectors on the drum drive board.



REEL MOTOR (M902)



SECTION 3
ADJUSTMENTS

Notes When Making Adjustments

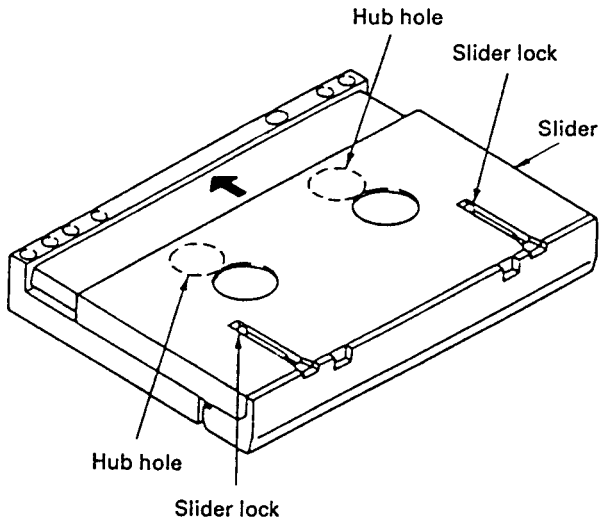
1. Adjustments should be performed in the order listed.
2. Use the following test tapes :
   TY-7111 (8-909-812-00) ..... Level
   TY-7252 (8-909-822-00) ..... Tracking
   TY-7551 (8-909-814-00) ..... Functions
   TY-30B (8-892-358-00) ..... Blank

   Use the following torque meter:
   TW-7131 (8-909-708-71) ..... FWD

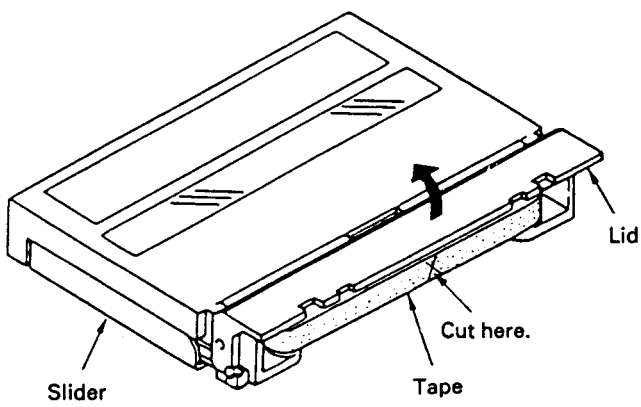
3. Switches and controls should be set as follows unless otherwise specified.

TIMER switch	: OFF
REC MODE switch	: LONG
INPUT switch	: DIGITAL1
REC LEVEL control	: Min.
PHONE LEVEL control	: Min.

4. Creating an end sensor cassette
   (1) Press the tape slider lock and move the slider in the direction indicated by the arrow.



   (2) Open the lid and cut the tape.



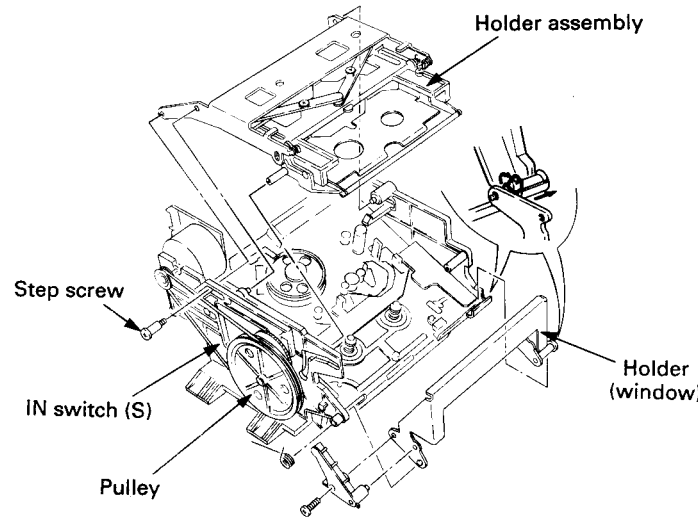
   (3) Turn the hubs until the tape is completely inside the cassette (both T and S sides).
   The end sensor cassette for end sensor adjustment is now ready for use.

5. Cleaning of the Revolving Drum.
   (1) Fold a chamois (2-034-697-00) or a knit cloth into 4 or more files, slightly impregnate it with a cleaning liquid (9-919-573-00), and softly touch the drum with it and manually rotate the drum slowly counterclockwise by 2 to 3 turns for cleaning.
   (2) At that time, be careful not to move the chamois vertically to the head tip. Otherwise, the head tip may probably be damaged.

6. Be careful not to move RV1 and RV2 on the RF AMP board in the mechanism assembly.

7. To adjust the tape path and guides, remove the holder assembly as shown in the diagram and use the DAT holder jig (J-8000-002-A). This will make it easier to perform adjustments.

   - First turning the pulley counterclockwise to put it in loading out status will make removal and reattachment of the holder assembly easier.
   - For adjusting, turn the pulley clockwise to effect loading in status, set a test tape and turn ON the IN switch. Or, adjust the device set to the test mode without cassette compartment (see the next section).



8. Test mode
   The test mode is effected by shorting TP (T_M, T_S and TEST DISP) on the main board and the FL board and GND.
   (1) Test mode (main · servo)
   Turn OFF the power switch, connect T_M and T_S on the main board to GND and perform the following adjustments.
   - Tape path fine adjustment
   - DPG adjustment
   - ATF pilot (GCA) checking
   - End sensor checking
   - FWD torque checking
   - FWD back tension checking and adjustment

   (2) Test mode (FL)
   You can check the following FL display tube and the panel switch by turning OFF the power switch, connecting TEST DISP to GND and then turning ON the power switch.

Each grid of the FL display tube lights up sequentially from the 1G up to the 10G, so all tubes being lighted up finally.

⇓

Each level meter goes out sequentially.

⇓

Press the STOP button.

⇓

Press the PLAY button.

⇓

When the 6G goes out, checking of EEP-ROM (IC(03)) is satisfactorily completed.

⇓

The up indication mark goes out.

⇓

Every time a switch on the panel (including the power, REC MODE, INPUT and TIMER switches), the indication lamps of the level meters light up sequentially. When all switches but the reset switch are pressed, all level meters light up. Press the reset switch in this state. If all level meters go out, checking of the panel switches are satisfactorily completed.

- To reset the test mode as described above, disconnect the short-circuit wire between the TEST DISP and GND pins. After completion of adjusting, be sure to reset the test mode.

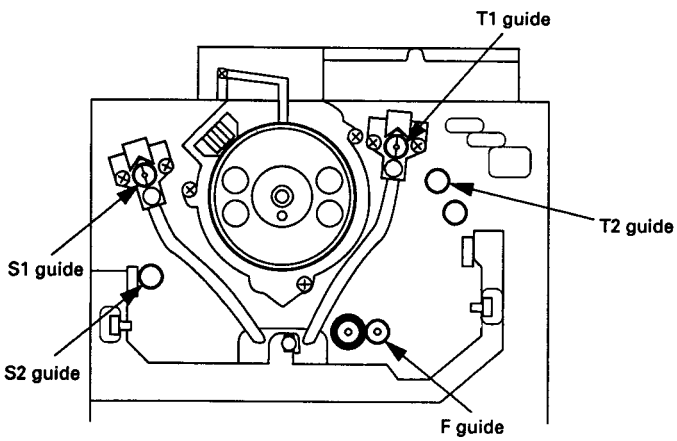
The following function is activated by multi-pressing the key switch on the panel.

(3) No-cassette-compartment test mode
Turn the power switch ON while pressing the 3 switches of Timer Play, Write and Clock Set, thereby you can activate PLAY, STOP, etc. even without the cassette compartment (a mechanism to perform cassette IN and EJECT including the cassette holder). At that time, fix the cassette using the DAT holder jig (J-8000-002-A).

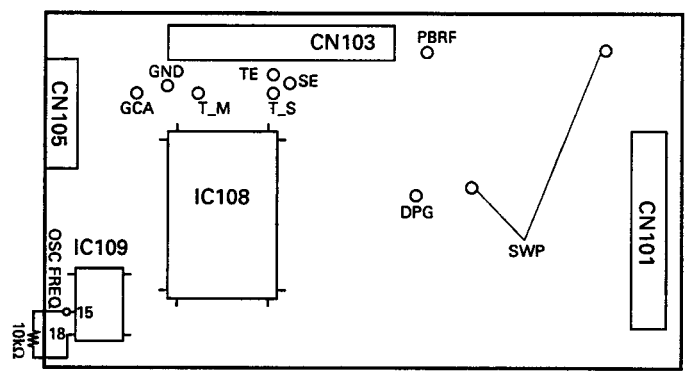
9. Check the following items for correct tape speed, after completion of adjusting.
(1) Set the REC MODE switch to STANDARD and check for normal recording and playback. (× 1)
(2) Set the REC MODE switch to LONG and check for normal recording and playback. (× 0.5)
(3) With QUE (▷ + ▶▶) or REVIEW (▷ + ◀◀), check that qurrr, qurrr sound is heard. (× 3, × 8)
(4) Check that correct time is displayed after FF (▶▶) or REV (◀◀). (× 16)
(5) Check that SEARCH (▷▷|, |◁◁) is normal.

Adjust Parts Location

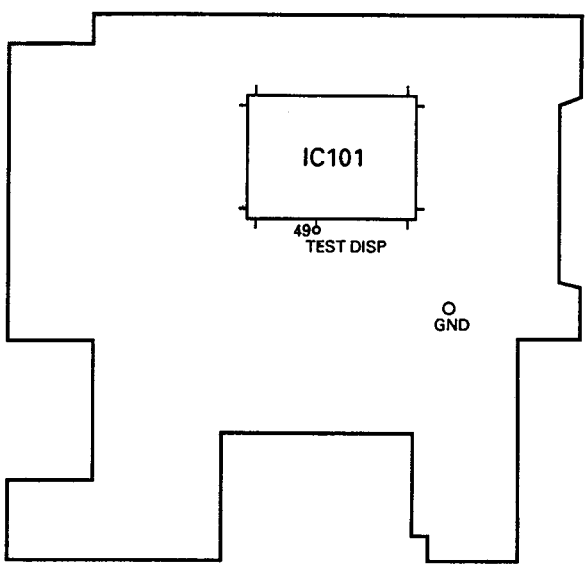
– Mechanism assembly –



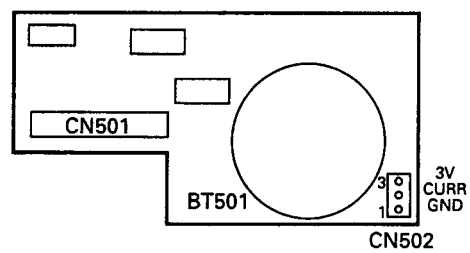
– Main board –



– FL board –



– REG board –



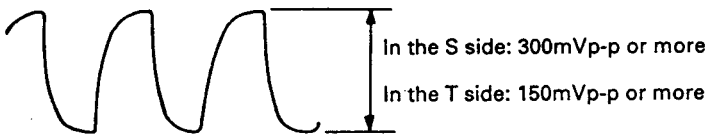
3-1. ELECTRICAL ADJUSTMENTS

End Sensor Check

Perform the following adjustment when the holder has been removed or part of the mechanism deck section replaced.

Check Procedure:

1. Connect an oscilloscope to the test land SE (in the S side) and TE (in the T side) of the main board.
2. Actuate the test mode (main · servo), mount an end sensor cassette and effect the STOP (■) mode.
3. Check that p-p values of waveform of the oscilloscope satisfy the following.



FWD Torque Check

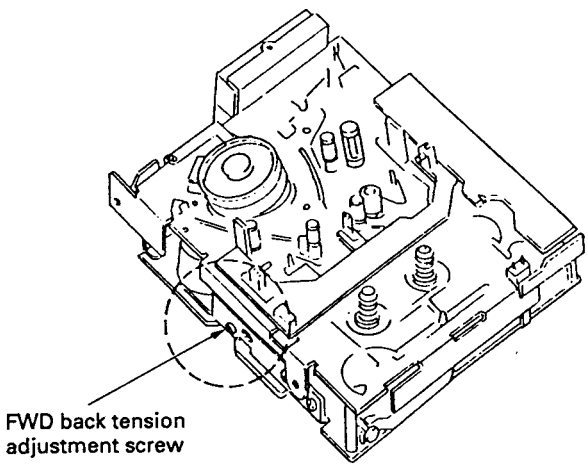
Check Procedure:

1. Put the set into the test mode (main · servo) and load the FWD torque meter TW-7131 (8-909-708-71).
2. Put the set into the PLAY (▷) mode.
3. Confirm that the FWD torque value (take-up side rewinding torque) is between 10 – 20 g·cm (0.14 – 0.28 oz·inch).
4. Confirm that the value indicated by the torque meter is maintained for one full cycle.

FWD Back Tension Check and Adjustment

Check procedure:

1. Put the set into the test mode (main · servo) and load the FWD torque meter TW-7131 (8-909-708-71)
2. Put the set into the PLAY (▷) mode.
3. Confirm that the back tension (supply side) is between 5 – 6 g·cm (0.07 –0.09 oz·inch).
   If this is not satisfied, adjust back tension by rotating the FWD back tension adjustment screw equipped on the side surface of the mechanical deck. After completion of adjusting, be sure to apply screw lock.
4. Confirm that value indicated by the torque meter is maintained for one full cycle.



To tighten (clockwise) — back tension becomes larger.
To loosen (counterclockwise) — back tension becomes smaller.

Tape Path Fine Adjustments (× 1.5 FWD Mode)

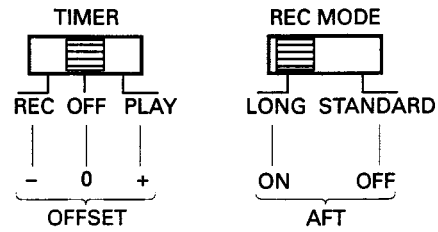
Perform the following adjustment when the drum has been replaced.

Adjustment Procedure :

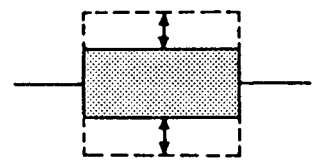
1. Connect an oscilloscope CH-1 to TP (PBRF) and CH-2 to TP (SWP) on the main board.

2. Put the set into the test mode (main · servo) and load test tape TY-7252 (8-909-822-00).

3. Press the AMS (▷▷|) key.
   Each part of switches on Test Mode.

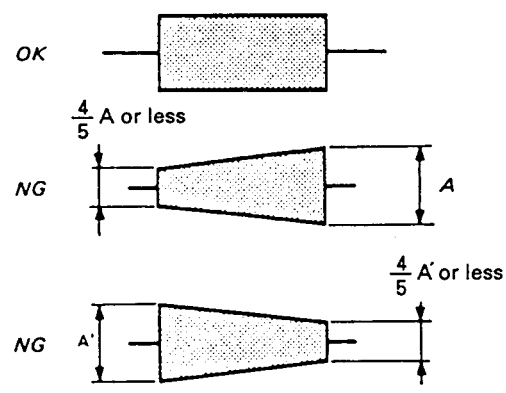


4. With the REC MODE switch set to STANDARD (ATF: OFF) and the TIMER switch set to PLAY or REC (OFFSET: + or –), fine adjust the S1 and T1 guides so that the oscilloscope RF signal waveform remains the same when high-low is repeated.



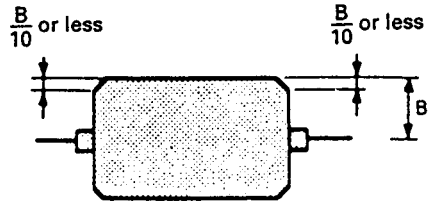
* Finish the adjustment by screwing in.

5. Check the RF signal waveform with the REC MODE switch set to LONG (ATF: ON) and the TIMER switch set to PLAY or REC (OFFSET: + or –).



6. Check the RF signal waveform with the REC MODE switch set to LONG (ATF: ON) and the TIMER switch set to PLAY or REC (OFFSET: 0).
   (1) Confirm theat the RF signal waveform peak value (B) is 60 mV or more.

(2) Confirm that the undershoot level of the RF signal waveform's flat portion is within 10%.



7. When the measured values are not within the above tolerances, repeat items 3 – 6 above.

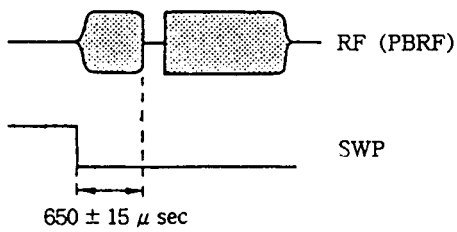
Adjustment Point: mechanism assembly

DPG Adjustment

Perform the following adjustment without fail when the drum has been replaced.

Adjustment Procedure:

1. Connect oscilloscope CH-1 to TP (PBRF) and CH-2 to TP (SWP) on the main board. (Use CH-2 as the trigger. When the CH-2 signal is inverted, the trailing edge can be used for synchronization.)
2. Put the set into the test mode (main · servo) and load test tape TY-7252 (8-909-822-00).
3. Set the REC MODE switch to LONG (ATF: ON) and the TIMER switch to OFF (OFFSET: 0).
4. Press the AMS (▷▷|) key.
5. Press the ◀◀ and ▶▶ keys as appropriate so that the gap between the oscilloscope SWP and RF signals becomes 650 ± 15 µsec. (Hold the ◀◀ and ▶▶ keys down for more than 1 second to perform rough adjustment. Hold them down for approximately 0.2 seconds for fine adjustment.)



ATF Pilot (GCA) Check

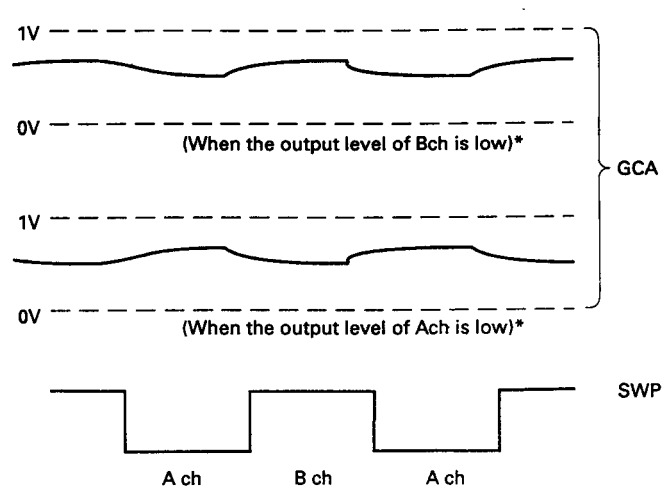
Perform this adjustment after cleaning the heads with a cleaning cassette.

Check Procedure:

1. Connect oscilloscope CH-1 to TP (GCA: Gain Control Amp.) and CH-2 to TP (SWP) on the main board. (When the CH-2 signal is inverted, the trailing edge can be used for synchronization.)

2. Put the set into the test mode (main · servo) and load test tape TY-7111 (8-909-812-00).

3. Actuate the PLAY (▷) mode and check that the GCA waveform on the oscilloscope is as follows.



* Slightly changes depending on the state of the head. NG if the GCA waveform is 1V or more or equal to the GND level.

3-2. CHECKS FOR DATE FUNCTION

Clock IC Back-up Check

- When there is the short-circuit position on the pattern around the lithium battery (BAT501) or the clock IC (IC109) or disconnecting CN101, 104, 404, 501, etc. on removing the front panel assembly the clock is reset.
  (In spite of pressing PRESET button, the data indication becomes "_ _$_D$ _ _$_M$ _ _" "_ _$_H$ _ _$_M$ _ _$_S$")
  At this time, check the back-up function by the procedures given below.

(1) Connect DC voltmeter to CN502 pin① and CN502 pin② on the regulator board.
(2) When the power is off, the voltage value of the item (1) should be less than +30 mV.
(When the voltage value becomes +30 mV or more, Check around IC109 or replace IC109.) (IC109 : main board)
(3) When the power is on, the voltage value of the item (1) should be less than 0 mV (– (minus) indication).
(When the voltage value becomes + (plus) indication, Check around D502 or replace D502.) (D502 : reg board)
(4) When the above voltage values are normal, set the preset date and time (year, month, day, day of the week, hour, minute, second) according to the instruction manual.
(5) After setting the time on the item (4), turn power off and turn power on several seconds later, and check the clock works normally.

Back-up Battery Replacement

The life of the back-up battery under normal use (normal temperature, normal humidity) is approximately ten years or more. (On the instruction manual, described "approximately five years".)
Be careful about the following points on the battery replacement.

- Repair the cause of the battery wastage by performing mentioned above "Clock IC Back-up Check".
- The open-circuit voltage of the replaced battery is 3.0 V or more as the new one, and when it is 2.0 V or less, it is completely consumed, replace it with new one.
- After the battery replacement, perform "Clock IC Back-up Check" again and set the time.

Clock Frequency Adjustment

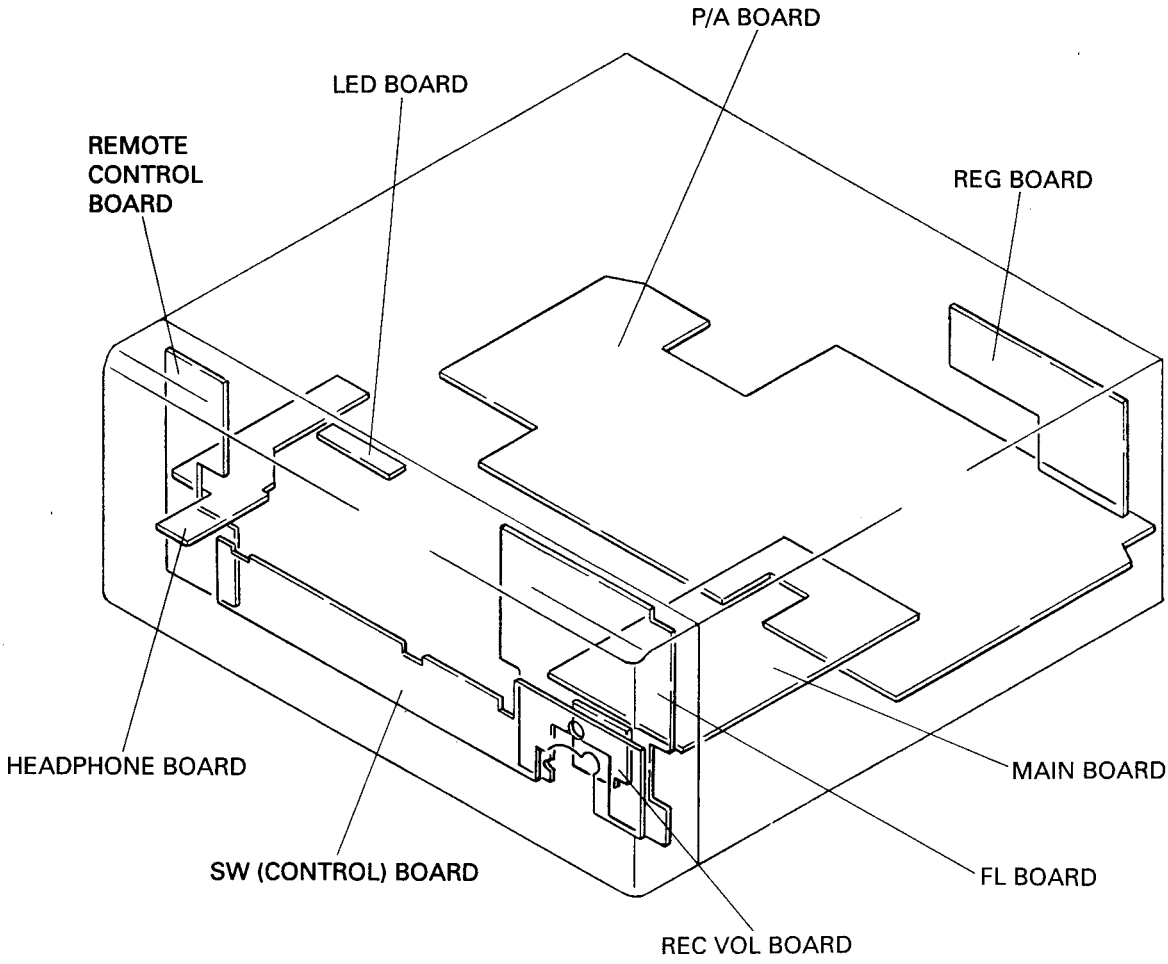
Adjustment Procedure:

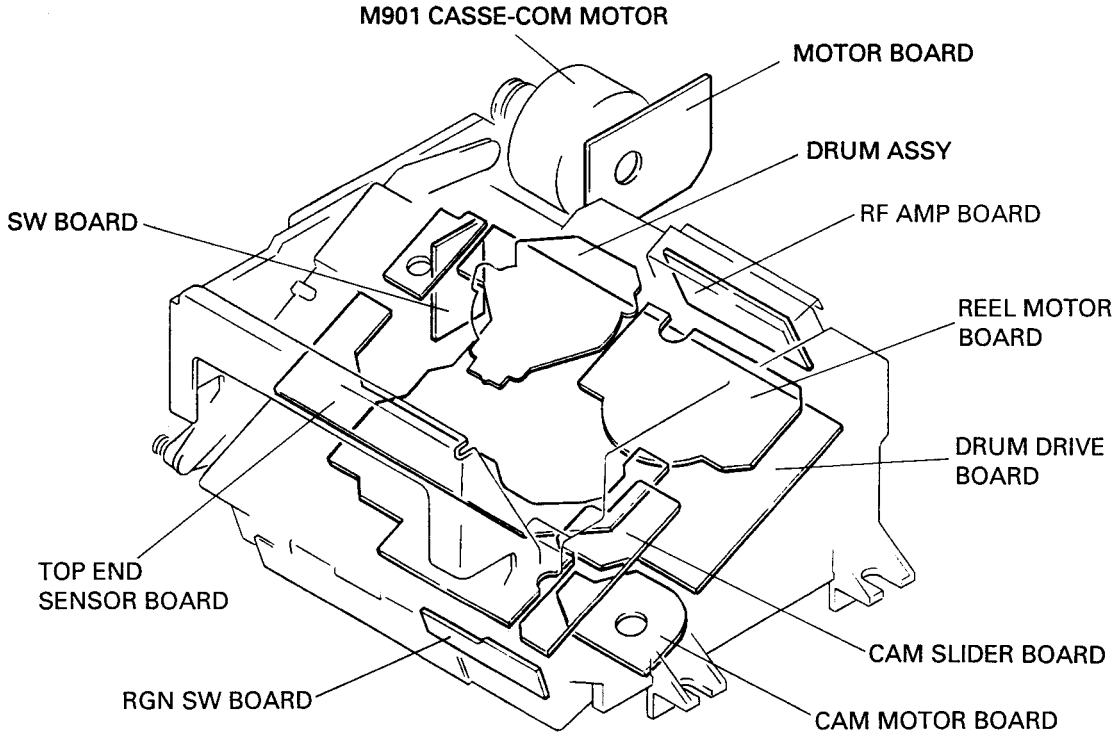
(1) Connect a pull-up resistance of about 10kΩ between pins ⑮ and ⑱ of the IC109.
(2) Connect a frequency counter to pin ⑮ of IC109(OSC FREQ) and GND on the main board.
(3) Turn power on and confirm that the reading on the frequency counter is 2048.00 ± 0.02 Hz. (in normal temperature)
(4) Remove the frequency counter and the pull-up resistance.
(5) Perform "Clock IC Back-up Check" described above.

* Time setting procedure described on page 8.

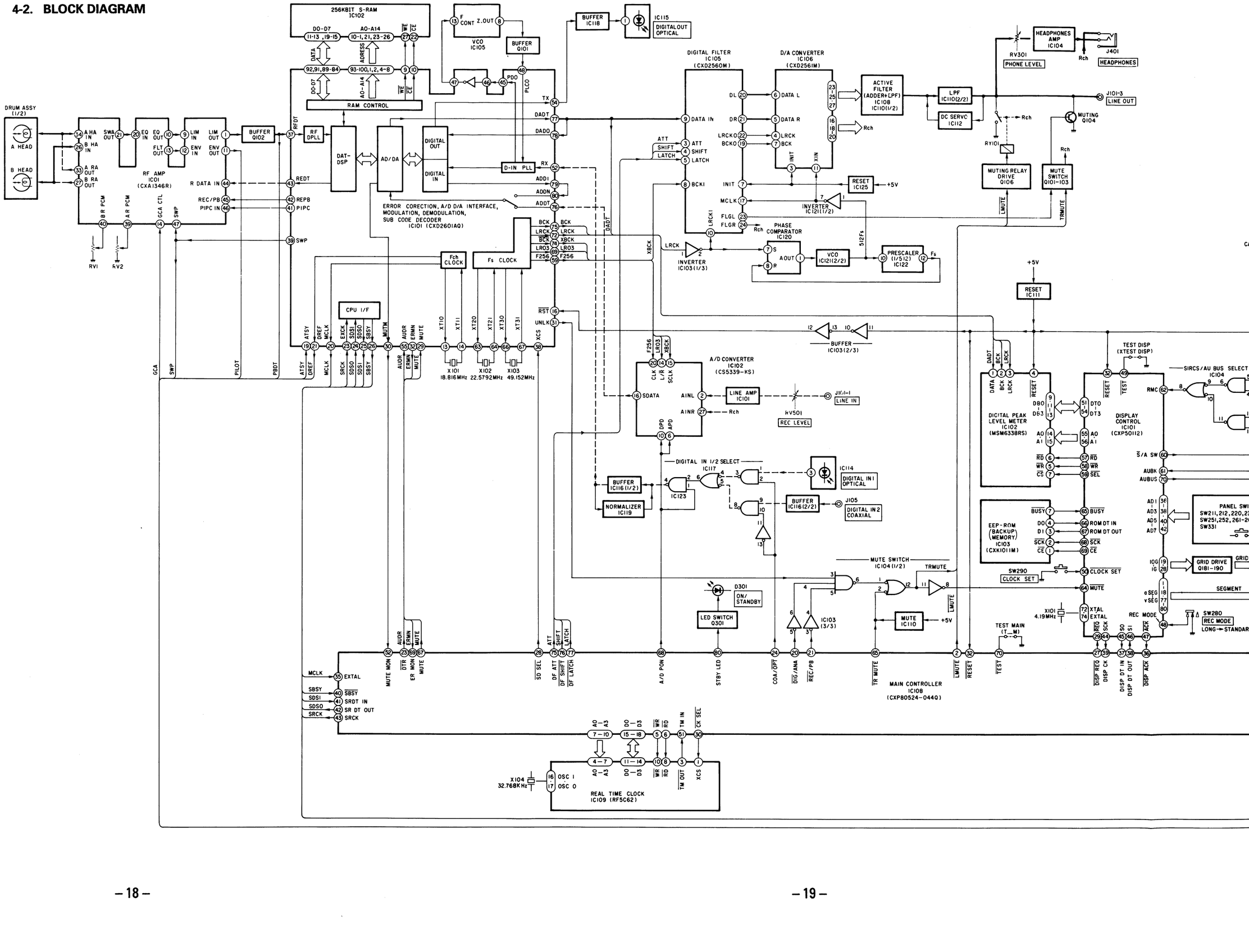
SECTION 4
DIAGRAMS

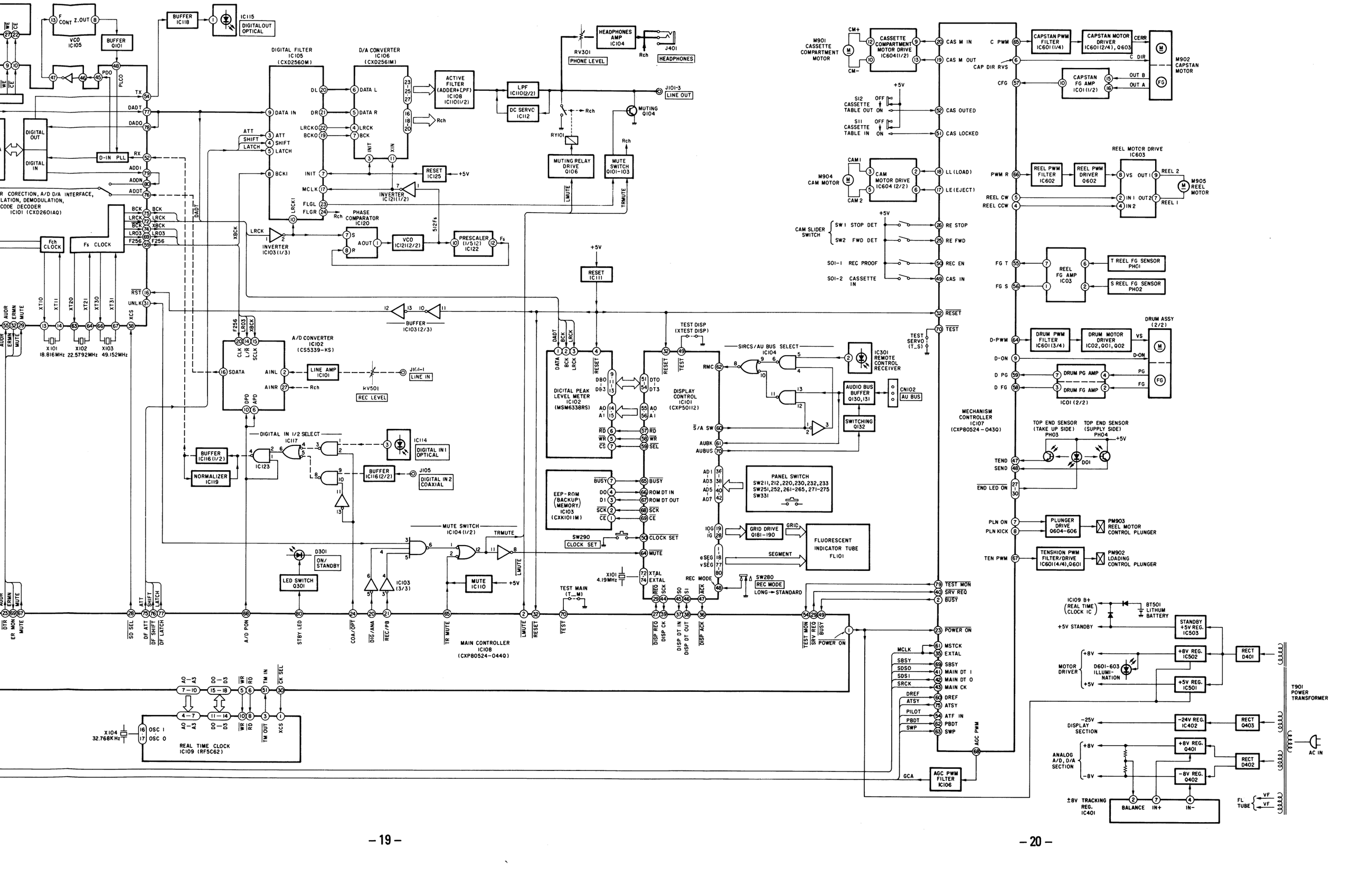
4-1. CIRCUIT BOARDS LOCATION





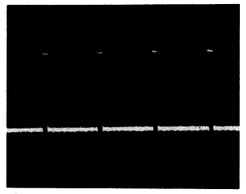
4-2. BLOCK DIAGRAM



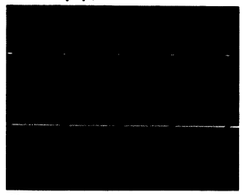

VCO IC105
BUFFER IC118
IC115 DIGITAL OUT OPTICAL
BUFFER Q101
DIGITAL FILTER IC105 (CXD2560M)
D/A CONVERTER IC106 (CXD2561M)
ACTIVE FILTER (ADDER+LPF) IC108 IC1101(1/2)
LPF IC1102/2)
DC SERVO IC112
HEADPHONES AMP IC104
RV301 PHONE LEVEL
J401 HEADPHONES
J101-3 LINE OUT
MUTING Q104
MUTING RELAY DRIVE Q106
MUTE SWITCH Q101-103
RESET IC125
INVERTER IC121(1/2)
PHASE COMPARATOR IC120
VCO IC121(2/2)
PRESCALER (1/512) IC122
INVERTER IC103(1/3)
DIGITAL OUT
DIGITAL IN
D-IN PLL
R CORECTION, A/D D/A INTERFACE, LATION, DEMODULATION, CODE DECODER IC101 (CXD2601AQ)
Fch CLOCK
Fs CLOCK
X101 18.816MHz
X102 22.5792MHz
X103 49.152MHz
A/D CONVERTER IC102 (CS5339-KS)
LINE AMP IC101
J101-1 LINE IN
RV501 REC LEVEL
BUFFER IC116(1/2)
NORMALIZER IC119
DIGITAL IN 1/2 SELECT IC117
IC123
IC114 DIGITAL IN1 OPTICAL
BUFFER IC116(2/2)
J105 DIGITAL IN 2 COAXIAL
MUTE SWITCH IC104(1/2)
MUTE IC110
D301 ON/STANDBY
LED SWITCH Q301
IC103 (3/3)
BUFFER IC103(2/3)
RESET IC111
MAIN CONTROLLER IC108 (CXP80524-0440)
DIGITAL PEAK LEVEL METER IC102 (MSM6338RS)
DISPLAY CONTROL IC101 (CXP50112)
EEP-ROM (BACKUP) MEMORY IC103 (CXK1011M)
SW290 CLOCK SET
X101 4.19MHz
TEST MAIN (T_M)
TEST DISP (XTEST DISP)
SIRCS/AU BUS SELECT IC104
IC301 REMOTE CONTROL RECEIVER
AUDIO BUS BUFFER Q130,131
CN102 AU BUS
SWITCHING Q132
PANEL SWITCH SW211,212,220,230,232,233 SW251,252,261-265,271-275 SW331
GRID DRIVE Q181-190
FLUORESCENT INDICATOR TUBE FL101
SW280 REC MODE LONG→STANDARD
REAL TIME CLOCK IC109 (RF5C62)
X104 32.768KHz
M901 CASSETTE COMPARTMENT MOTOR
CASSETTE COMPARTMENT MOTOR DRIVE IC604(1/2)
S12 CASSETTE TABLE OUT
S11 CASSETTE TABLE IN
M904 CAM MOTOR
CAM MOTOR DRIVE IC604 (2/2)
CAM SLIDER SWITCH SW1 STOP DET SW2 FWD DET
SOI-1 REC PROOF
SOI-2 CASSETTE IN
CAS M IN
CAS M OUT
CAS OUTED
CAS LOCKED
LL (LOAD)
LE (EJECT)
RE STOP
RE FWD
REC EN
CAS IN
RESET
TEST
TEST SERVO (T_S)
MECHANISM CONTROLLER IC107 (CXP80524-0430)
C PWM
CAP DIR RVS
CFG
CAPSTAN PWM FILTER IC601(1/4)
CAPSTAN MOTOR DRIVER IC601(2/4), Q603
CAPSTAN FG AMP IC01(1/2)
M902 CAPSTAN MOTOR
REEL MOTOR DRIVE IC603
PWM R
REEL CW
REEL CCW
REEL PWM FILTER IC602
REEL PWM DRIVER Q602
M905 REEL MOTOR
FG T
FG S
REEL FG AMP IC03
T REEL FG SENSOR PH01
S REEL FG SENSOR PH02
DRUM ASSY (2/2)
D-PWM
D-ON
D PG
D FG
DRUM PWM FILTER IC601(3/4)
DRUM MOTOR DRIVER IC02,001,002
DRUM PG AMP
DRUM FG AMP
IC01(2/2)
TOP END SENSOR (TAKE UP SIDE) PH03
TOP END SENSOR (SUPPLY SIDE) PH04
D01
TEND
SEND
END LED ON
PLN ON
PLN KICK
PLUNGER DRIVE Q604-606
PM903 REEL MOTOR CONTROL PLUNGER
TEN PWM
TENSHION PWM FILTER/DRIVE IC601(4/4),Q601
PM902 LOADING CONTROL PLUNGER
IC109 B+ (REAL TIME CLOCK IC)
BT501 LITHUM BATTERY
+5V STANDBY
STANDBY +5V REG. IC503
+8V REG. IC502
+5V REG. IC501
MOTOR DRIVER
D601-603 ILLUMI-NATION
RECT D401
T901 POWER TRANSFORMER
AC IN
-25V DISPLAY SECTION
-24V REG. IC402
RECT D403
ANALOG A/D, D/A SECTION
+8V REG. Q401
-8V REG. Q402
RECT D402
±8V TRACKING REG. IC401
BALANCE
IN+
IN-
FL TUBE
VF
AGC PWM FILTER IC106
GCA
POWER ON
MSTCK
EXTAL
SBSY
MAIN DT I
MAIN DT O
MAIN CK
DREF
ATSY
ATF IN
PBDT
SWP
AGC PWM
TEST MON
SRV REQ
BUSY
DISP REQ
DISP CK
DISP DT IN
DISP DT OUT
DISP ACK
LMUTE
TRMUTE
SD SEL
DF ATT
DF SHIFT
DF LATCH
A/D PON
STBY LED
COA/OPT
DIG/ANA
REC/PB
TR MUTE
RESET
TEST
DTR
ER MON
MUTE
AUDR
ERMN
XTI0
XTI1
XT20
XT21
XT30
XT31
XCS
XBCK
LRCK
BCK
DADT
DADO
ADDI
ADDN
ADDT
RST
UNLK
TX
RX
PDO
PLCO
WE
CE
F CONT Z.OUT
ATT
SHIFT
LATCH
INIT
MCLK
FLGL
FLGR
BCKI
LRCKI
DL
DR
LRCKO
BCKO
XIN
DATA IN
DATA L
DATA R
LRCK
BCK
AOUT
AINL
AINR
SDATA
DPD
APD
CLK
L/R
SCLK
F256
LRO3
XBCK
RMC
S/A SW
AUBK
AUBUS
AD1
AD3
AD5
AD7
IOG
IG
aSEG
vSEG
SEGMENT
GRID
REC MODE
CLOCK SET
MUTE
XTAL
EXTAL
BUSY
ROM DT IN
ROM DT OUT
SCK
CE
DBO
DB3
DTO
DT3
AO
A1
RD
WR
CS
SEL
DATA
BCK
LRCK
RESET
TEST
AO-A3
DO-D3
WR
RD
TM IN
TM OUT
CK SEL
OSC I
OSC O

4-3. WAVEFORMS

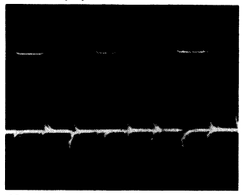
❶ FL101 ㉜-㊶pin
30Vp-p, 2ms



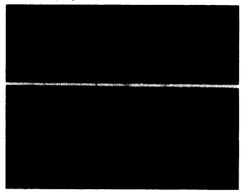
❷ IC101 ㉕-㉘pin
32Vp-p, 1ms



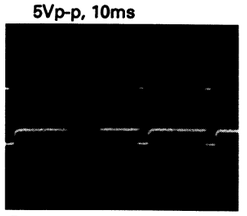
❸ IC101 ①-⑳pin
32Vp-p, 1ms



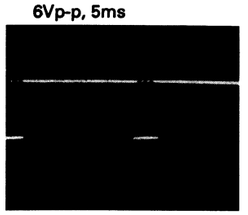
❹ IC101 ㊹-㊺pin
5Vp-p, 1ms



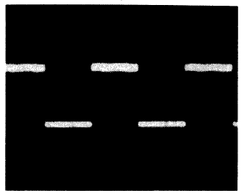
❺ IC101 ㊻pin
5Vp-p, 10ms



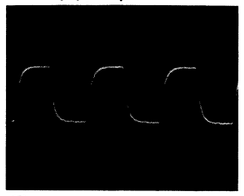
❻ IC101 ㊼pin
6Vp-p, 5ms



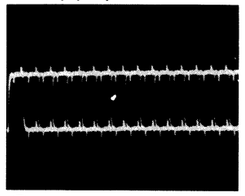
❼ IC102 ③pin
5.2Vp-p, 5µs



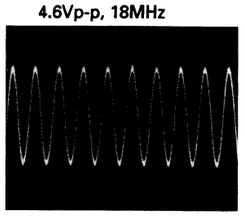
❽ IC102 ②pin
5Vp-p, 0.1µs



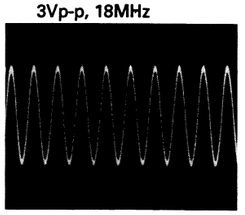
❾ IC102 ①pin
5Vp-p, 1µs



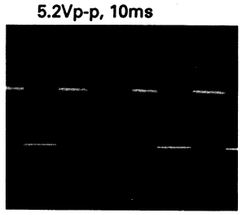
❿ IC101 ⑬pin
4.6Vp-p, 18MHz



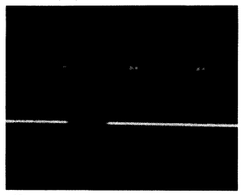
⓫ IC101 ⑭pin
3Vp-p, 18MHz



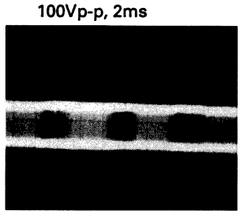
⓬ IC101 ⑳pin
5.2Vp-p, 10ms



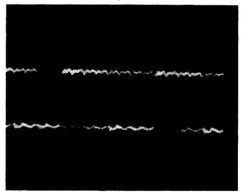
❸ IC101 ㉑pin
5Vp-p, 10ms



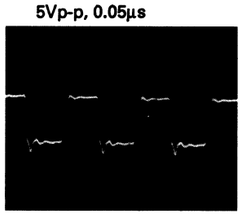
❹ IC101 ㊲pin
100Vp-p, 2ms



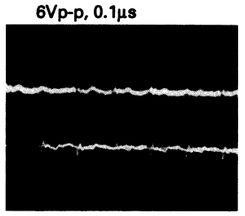
❺ IC101 ㊸pin
5Vp-p, 0.2µs



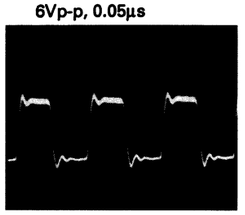
❻ IC101 ㊽pin
5Vp-p, 0.05µs



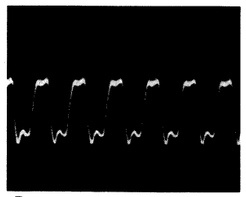
❼ IC101 ㊹pin
5Vp-p, 0.1µs



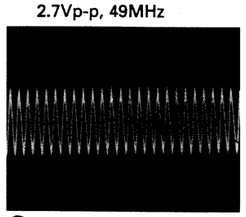
❽ IC101 ㊿pin
6Vp-p, 0.05µs



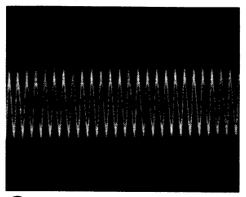
❾ IC101 ㊾pin
6Vp-p, 0.05µs



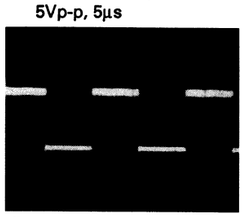
❿ IC101 ㊽pin
2.7Vp-p, 49MHz



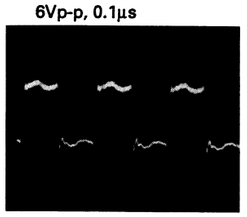
⓫ IC101 ㊼pin
1Vp-p, 49MHz



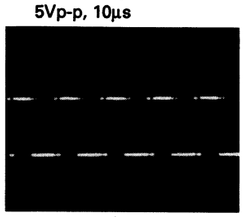
⓬ IC101 ㊾,㊿pin
5Vp-p, 5µs



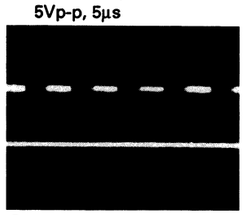
⓭ IC101 ㊾pin
6Vp-p, 0.1µs



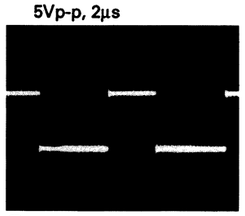
⓮ IC101 ㊿pin (Rec)
5Vp-p, 10µs



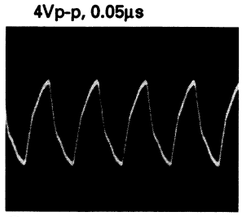
⓯ IC101 ㊽pin
5Vp-p, 5µs



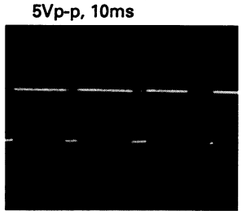
⓰ IC101 ㊿pin
5Vp-p, 2µs



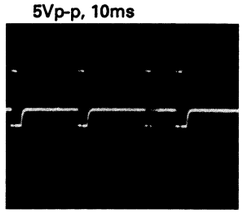
⓱ IC108 ㊺pin
4Vp-p, 0.05µs



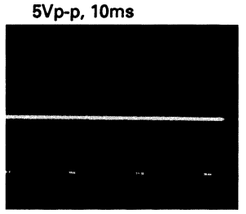
⓲ IC108 ㊱,㊲pin
5Vp-p, 10ms



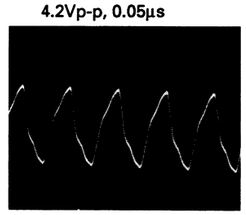
⓳ IC108 ㊳pin
5Vp-p, 10ms



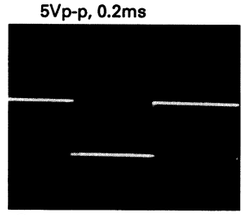
⓴ IC108 ㊴pin
5Vp-p, 10ms



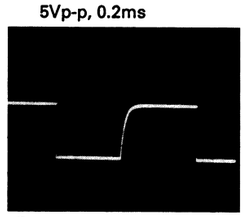
㉑ IC107 ㊺pin
4.2Vp-p, 0.05µs



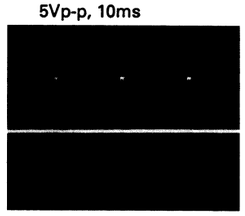
㉒ IC107 ㊼pin
5Vp-p, 0.2ms



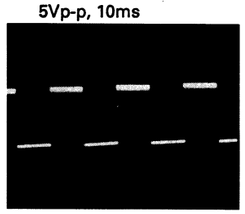
㉓ IC107 ㊾pin
5Vp-p, 0.2ms



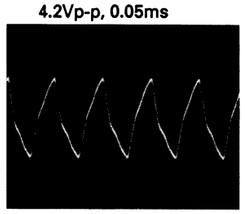
㉔ IC107 ㊾pin
5Vp-p, 10ms



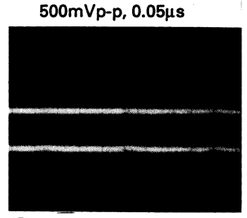
㉕ IC107 ㊿pin
5Vp-p, 10ms



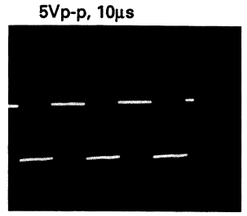
㉖ IC107 ㊶pin
4.2Vp-p, 0.05ms



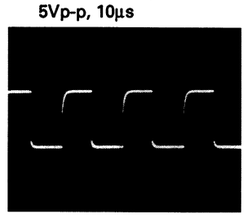
㉗ IC107 ㊷pin
500mVp-p, 0.05µs



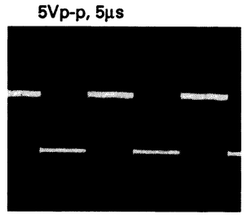
㉘ IC107 ㊸pin
5Vp-p, 10µs



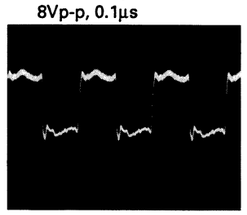
㉙ IC107 ㊹,㊺pin
5Vp-p, 10µs



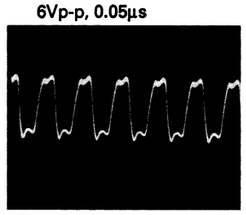
㉚ IC102 ⑭pin
5Vp-p, 5µs



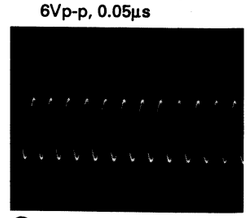
㉛ IC102 ⑮pin
8Vp-p, 0.1µs



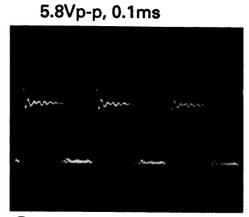
㉜ IC102 ⑳pin
6Vp-p, 0.05µs



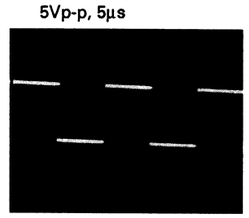
㉝ IC106 ⑨,⑪,⑫pin
6Vp-p, 0.05µs



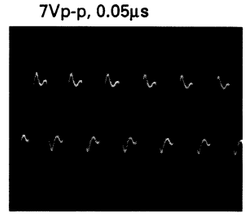
㉞ IC106 ⑯pin
5.8Vp-p, 0.1ms



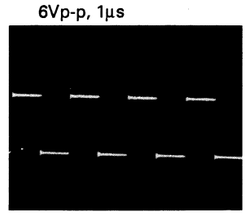
㉟ IC105 ⑩pin
5Vp-p, 5µs



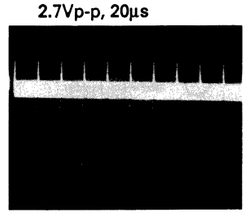
㊱ IC105 ⑲pin
7Vp-p, 0.05µs



㊲ IC105 ㉒pin
6Vp-p, 1µs



㊳ IC120 ①pin
2.7Vp-p, 20µs



㊴ IC12
1.2Vp

㊵ IC12
5.2Vp

㊶ IC12
5Vp-p

⑩,⑪,⑫pin
05µs

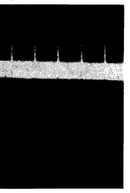
⑨pin
0.1ms

⑨pin
s

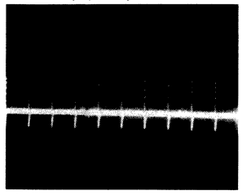
⑨pin
05µs

⑨pin
s

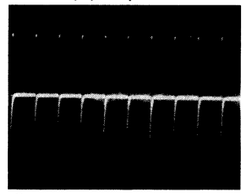
⑨pin
0µs



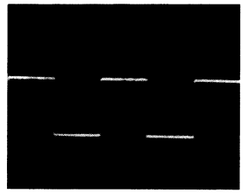
㊾ IC120 ②pin
1.2Vp-p, 20µs



㊿ IC120 ③pin
5.2Vp-p, 20µs

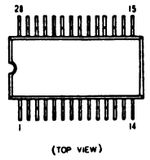


(51) IC120 ⑦,⑧pin
5Vp-p, 5µs

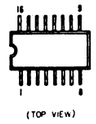


4-4. SEMICONDUCTOR LEAD LAYOUTS

CS5339-KS
CXD2561M-1
CXK58257AM-12L



CX20115A
MSM6338MS-K
SN74HC4020NS



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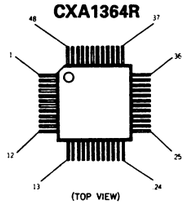

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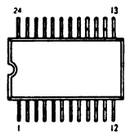

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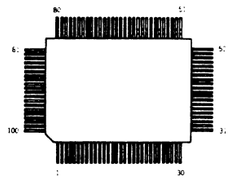
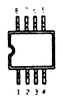
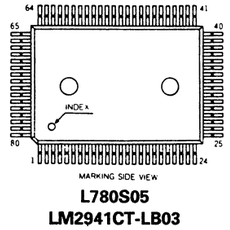


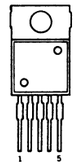
CXK1011M
LM358M
RC4560M
RC5332M
TC7WU04F
µPC814G2-1



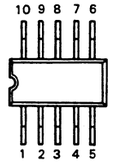
CXP50112-258Q
CXP80524-043Q
CXP80524-044Q



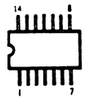
L780S05
LM2941CT-LB03



LB1638M

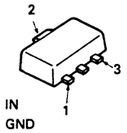


LB1836M
LM324M
SN74HC00ANS
SN74HC10ANS
SN74HC132NS
SN74HCU04ANS
SN74LS624NS



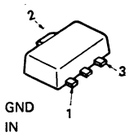
M5230L

NJM78L05UA



1. IN
2. GND
3. OUT

NJM79L05UA
NJM79L24UA

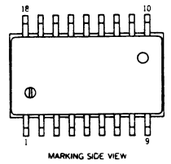


1. GND
2. IN
3. OUT

PST529CMT
PST529EMT

1. Vcc
2. GND
3. OUT

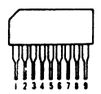
RF5C62



TA7805S

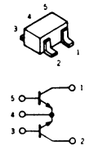
1. IN
2. GND
3. OUT

TC5081AP

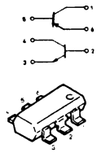


DTA114EK
DTC114EK
DTC144EK
2SA1162-G
2SC1623-L6
2SC1623-L7
2SC3395
2SC3624A-L15

FMA9
FMG9

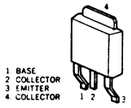


IMH2

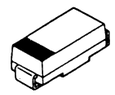


2SB798-DL
2SB1124-R
2SD1624-R

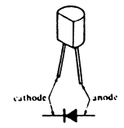
2SD1760F5-PQR



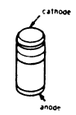
EC10DS2
EC10QS-04
RD6.2ES-B2



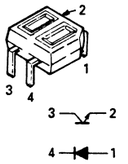
FC53M



GL-453

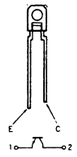


GP2S09-C

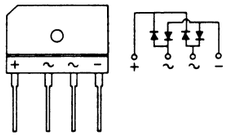


LN1461C

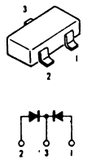
PT4850F



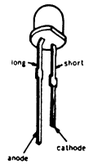
RBA406B



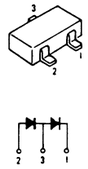
RB705D



SEL2210S-D



1SS226



4-5. PRINTED WIRING BOARDS
– MD/DISPLAY SECTION –

- See page 17 for circuit boards location and 23 for semiconductor lead layouts.

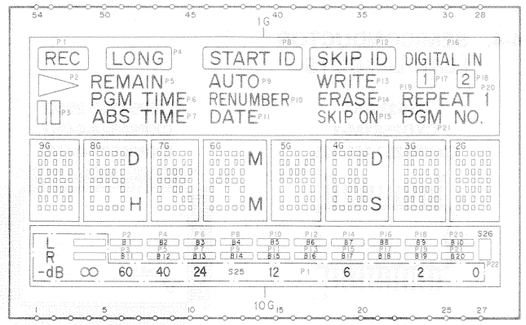
● SEMICONDUCTOR LOCATION

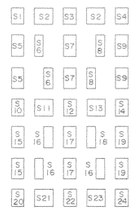
Ref. No.	Location	Ref. No.	Location
D01	F – 24	Q130	E – 9
D301	H – 12	Q131	E – 9
D401	B – 9	Q132	E – 9
		Q181	D – 9
IC1	E – 16	Q182	D – 9
IC01	F – 20		
IC02	F – 21	Q183	D – 9
IC03	G – 22	Q184	D – 9
IC101	E – 3	Q185	D – 9
		Q186	D – 9
IC102	F – 2	Q187	D – 8
IC103	E – 4		
IC104	E – 7	Q188	D – 8
IC301	F – 12	Q189	D – 8
IC401	B – 11	Q190	D – 8
		Q301	H – 11
Q01	F – 21		
Q02	H – 21		

Notes on printed wiring boards:

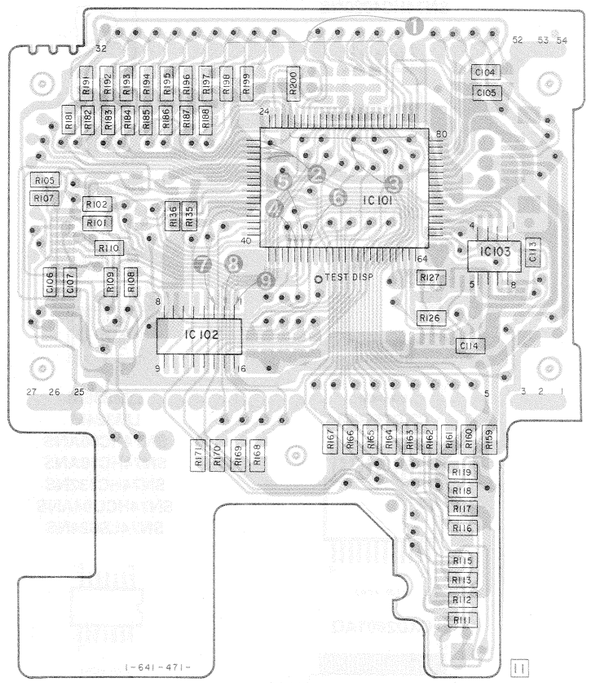
- o——: Indicated a lead wire mounted on the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▒ : Pattern from the side which enables seeing.
- ▒ : Pattern of the rear side.

FL101 FLUORESCENT INDICATOR TUBE

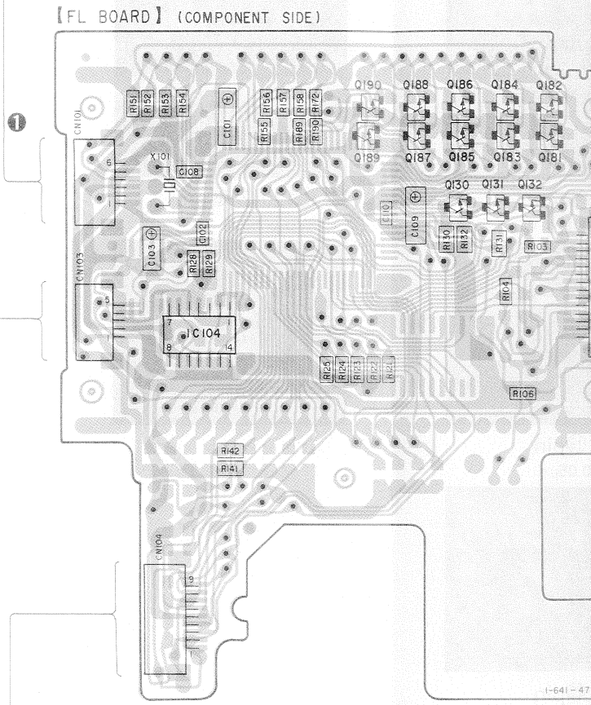




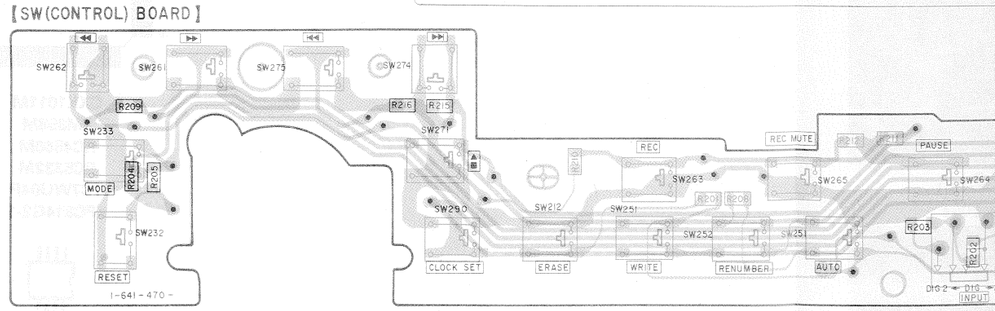
【FL BOARD】 (CONDUCTOR SIDE)

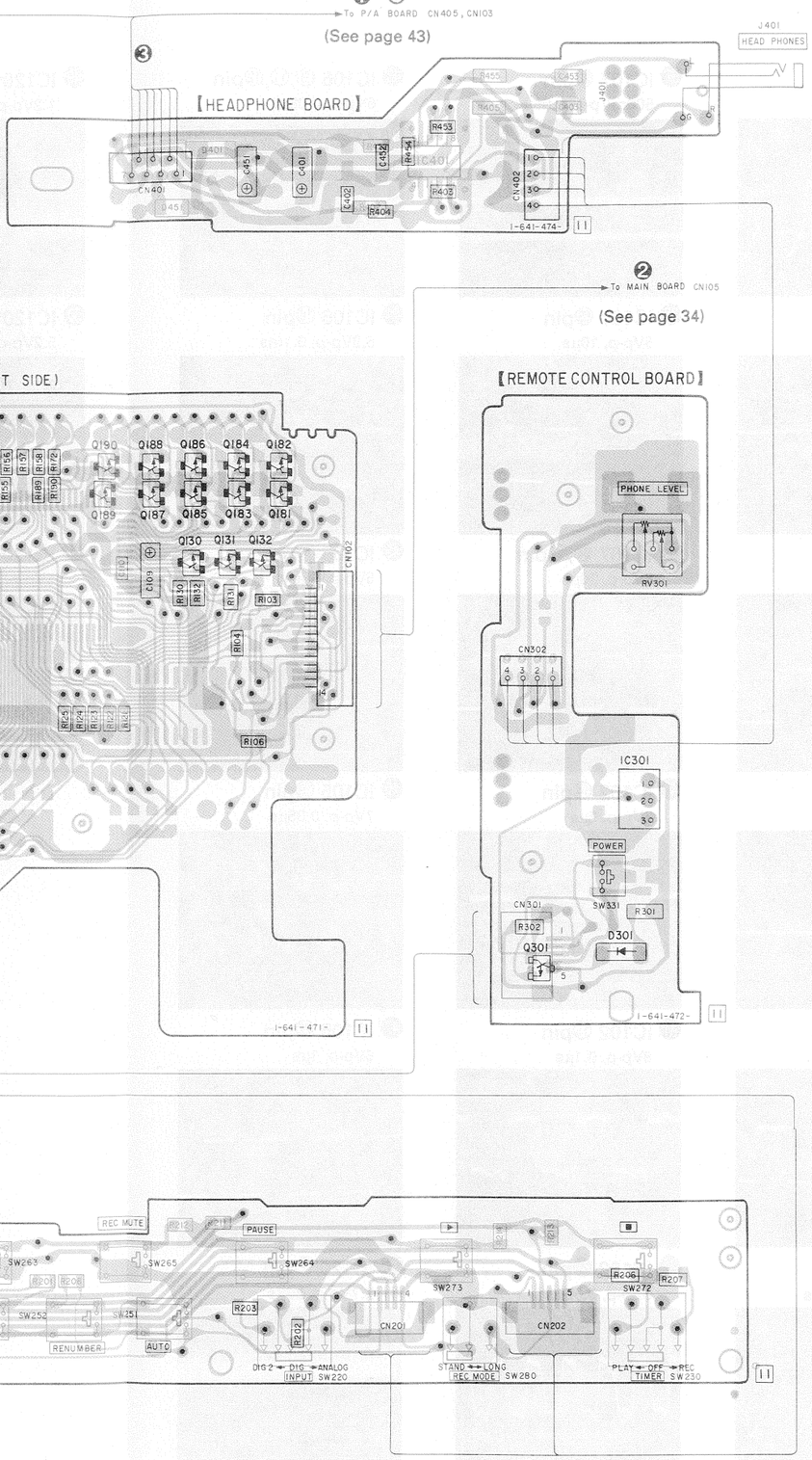


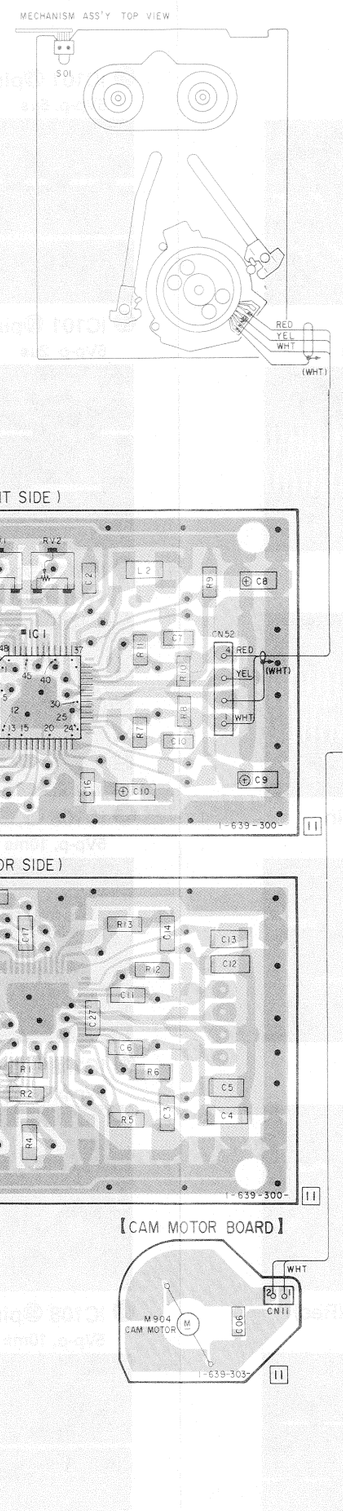
【FL BOARD】 (COMPONENT SIDE)



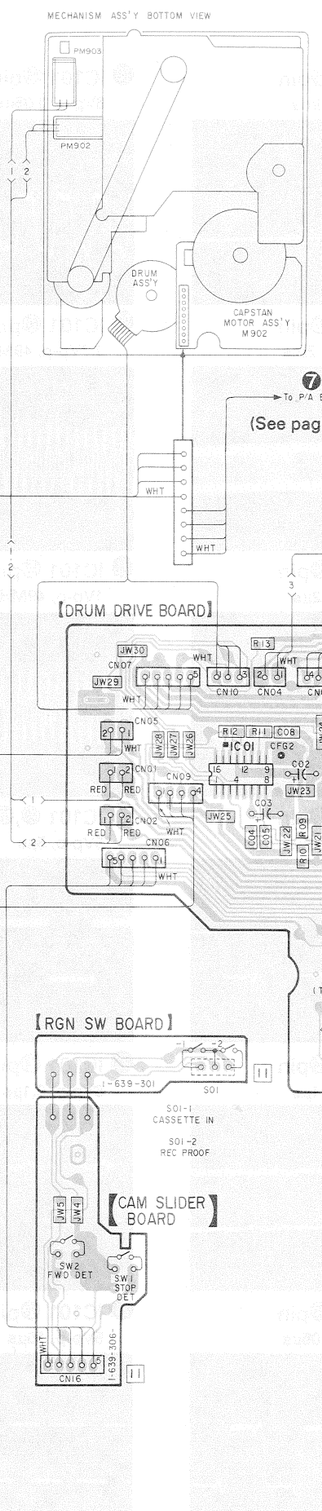
【SW(CONTROL) BOARD】

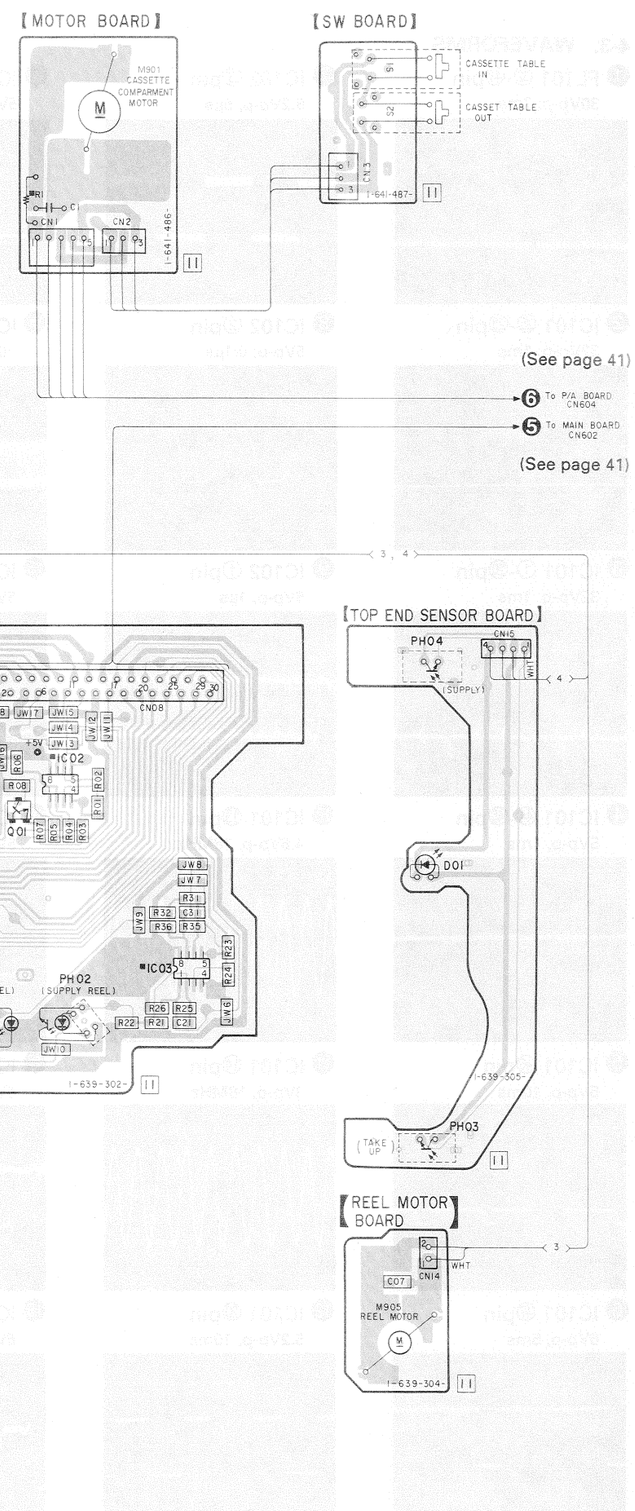


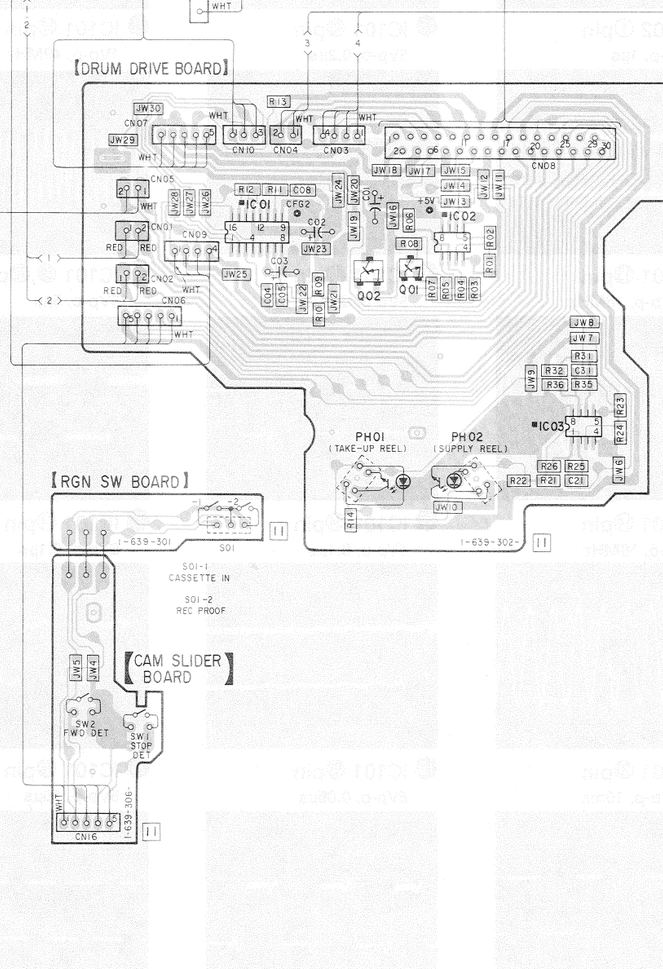

❶ ❸ To P/A BOARD CN405, CN103
(See page 43)
【HEADPHONE BOARD】
J401 HEAD PHONES
CN401
CN402
1-641-474-
❷ To MAIN BOARD CN105
(See page 34)
T SIDE)
【REMOTE CONTROL BOARD】
PHONE LEVEL
RV301
CN302
IC301
POWER
SW331
CN301
D301
Q301
1-641-472-
1-641-471-
REC MUTE
PAUSE
SW263
SW265
SW264
SW273
SW272
SW252
SW251
RENUMBER
AUTO
CN201
CN202
DIG ⇄ DIG → ANALOG INPUT SW220
STAND ⇄ LONG REC MODE SW280
PLAY ← OFF → REC TIMER SW230


❹ To MAIN BOARD CN102
(See page 36)
【RF AMP BOARD】(COMPONENT SIDE)
IG1
1-639-300-
【RF AMP BOARD】(CONDUCTOR SIDE)
1-639-300-
【CAM MOTOR BOARD】
M904 CAM MOTOR
1-639-303-

MECHANISM ASS'Y TOP VIEW
S01
RED
YEL
WHT
(WHT)

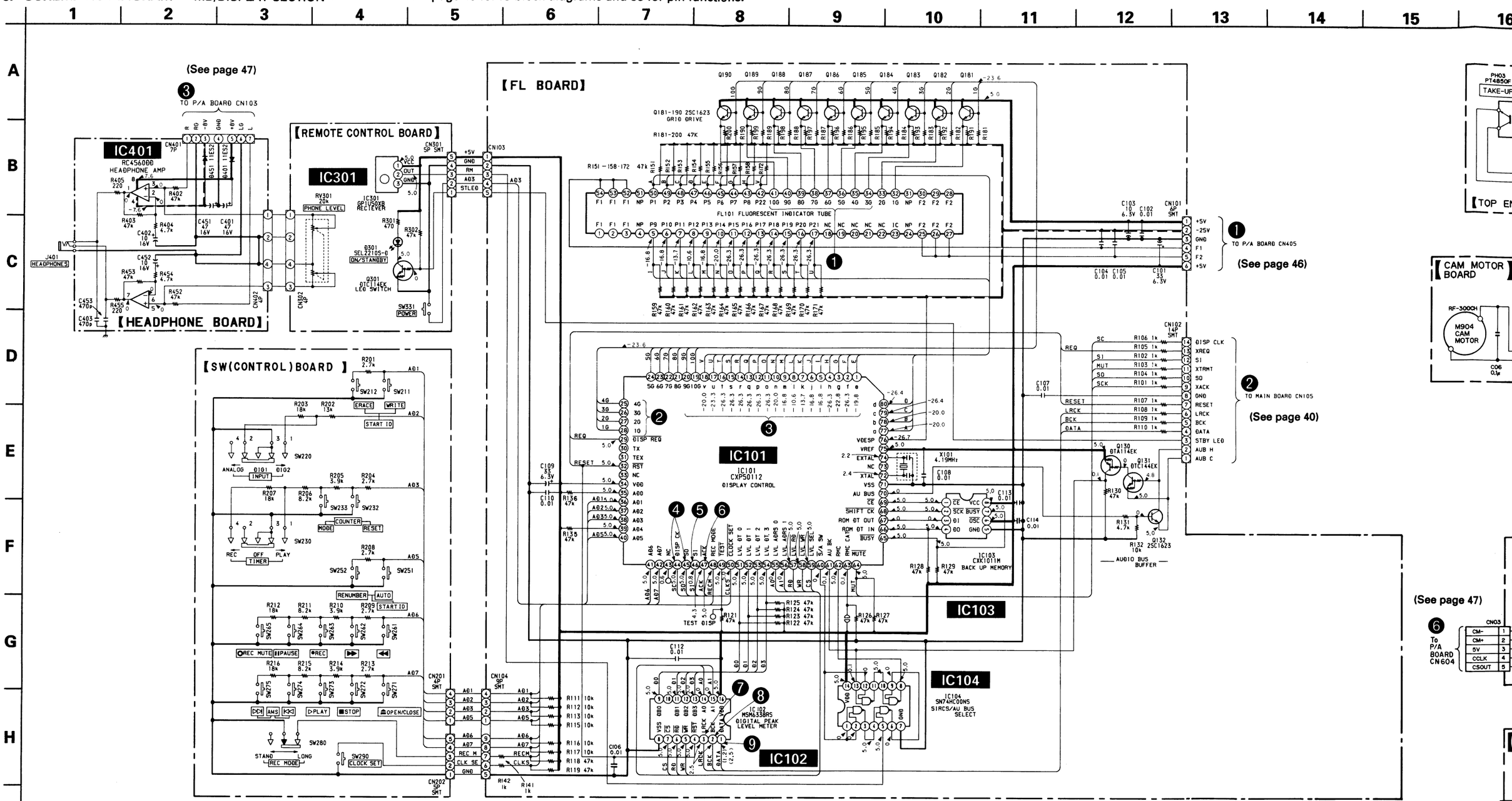

MECHANISM ASS'Y BOTTOM VIEW
PM903
PM902
DRUM ASS'Y
CAPSTAN MOTOR ASS'Y M902
❼ To P/A BOARD
(See page 42)
WHT

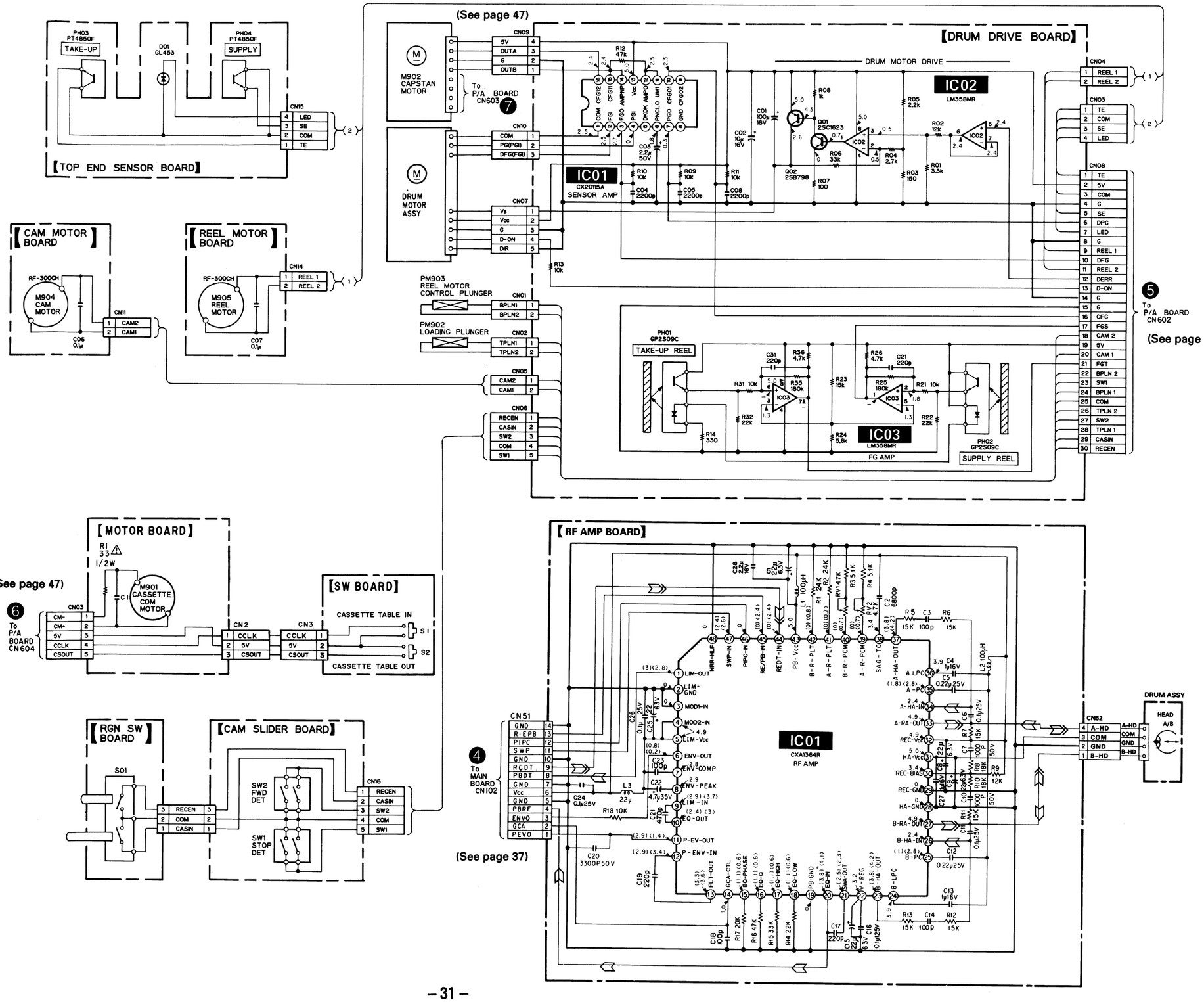

【MOTOR BOARD】
M901 CASSETTE COMPARMENT MOTOR
CN1
CN2
1-641-486-
【SW BOARD】
S1
S2
CASSETTE TABLE IN
CASSET TABLE OUT
CN3
1-641-487-
(See page 41)
❻ To P/A BOARD CN604
❺ To MAIN BOARD CN602
(See page 41)


【DRUM DRIVE BOARD】
CN07
CN10
CN04
CN03
CN08
CN05
CN01
CN09
CN02
CN06
IC01
IC02
Q01
Q02
PH01 (TAKE-UP REEL)
PH02 (SUPPLY REEL)
IC03
1-639-302-
【RGN SW BOARD】
1-639-301
S01
S01-1 CASSETTE IN
S01-2 REC PROOF
【CAM SLIDER】 BOARD
SW2 FWD DET
SW1 STOP DET
CN16
1-639-306-

【TOP END SENSOR BOARD】
PH04
CN15
(SUPPLY)
D01
1-639-305-
PH03
(TAKE UP)
【REEL MOTOR】 BOARD
CN14
C07
M905 REEL MOTOR
1-639-304-

• See page 49 for IC block diagrams and 53 for pin functions.





Notes on schematic diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- △ : internal component.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ▬▬ : B+ Line.
- ▪▪▪ : B− Line.
- ▭ : adjustment for repair.
- Voltage are dc with respect to ground under no-signal (STOP) conditions.
  no mark : Stop
  ( ) : PLAY
  < > : REC
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.(See page 21 for waveforms)
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path
  ≫ : PB
  ≫ : REC

4-7. PRINTED WIRING BOARDS
– MAIN SECTION –

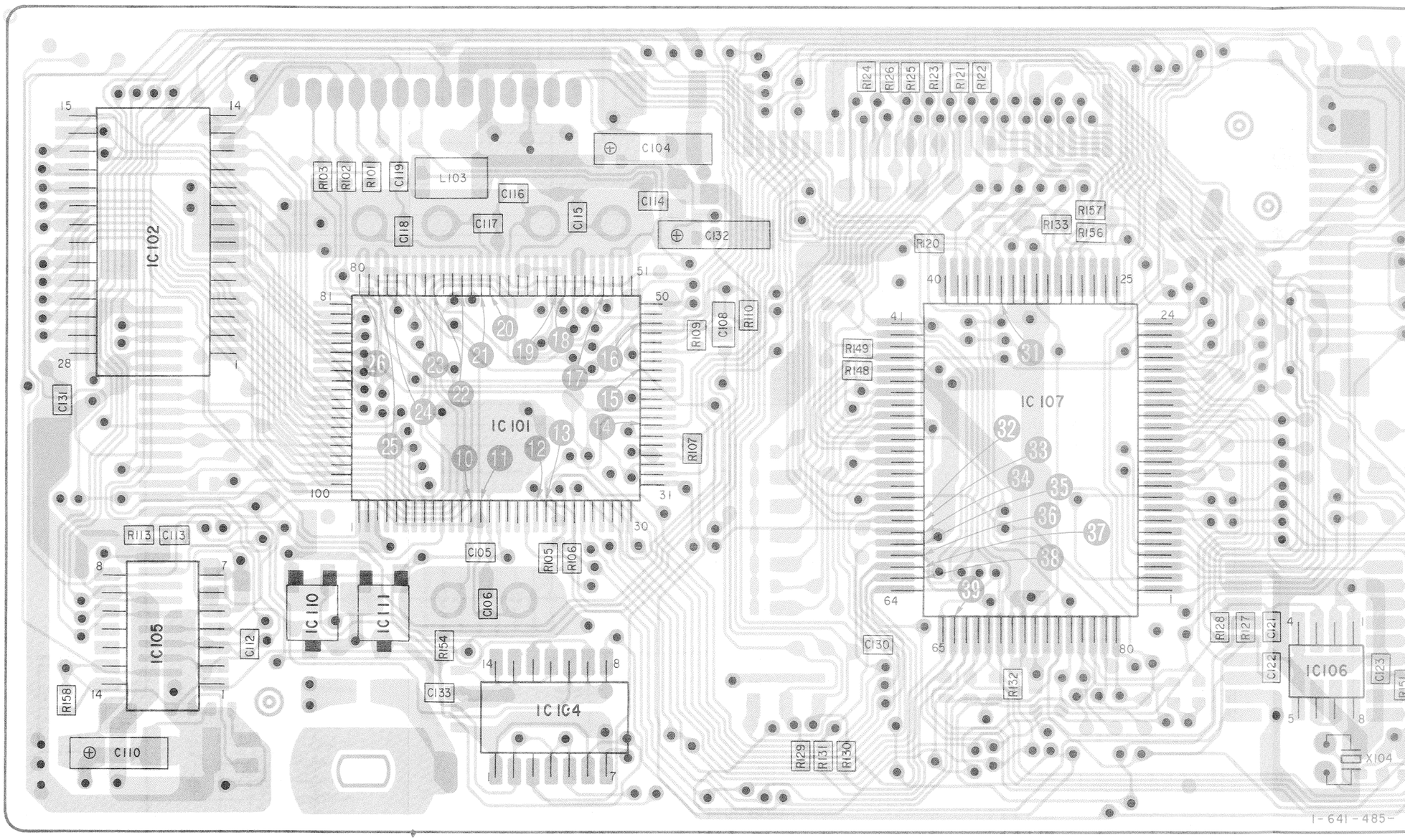
• See page 17 for circuit boards location and 23 for semiconductor lead layouts.

● SEMICONDUCTOR LOCATION

Ref. No.	Location
IC101	C – 3
IC102	B – 2
IC103	E – 14
IC104	E – 4
IC105	D – 2
IC106	E – 8
IC107	C – 6
IC108	C – 11
IC109	D – 10
IC110	D – 2
IC111	D – 3
Q101	D – 16
Q102	B – 13

Notes on printed wiring boards:
- ○——: indicated a lead wire mounted on the component side.
- ● : Through hole.
- Though main board consysts of 4 laminates, the printed wiring patterns of the second and the third laminate are not carried on this service manual.
- ▒▒▒: Pattern from the side which enables seeing.
- ▒▒▒: Pattern of the rear side.

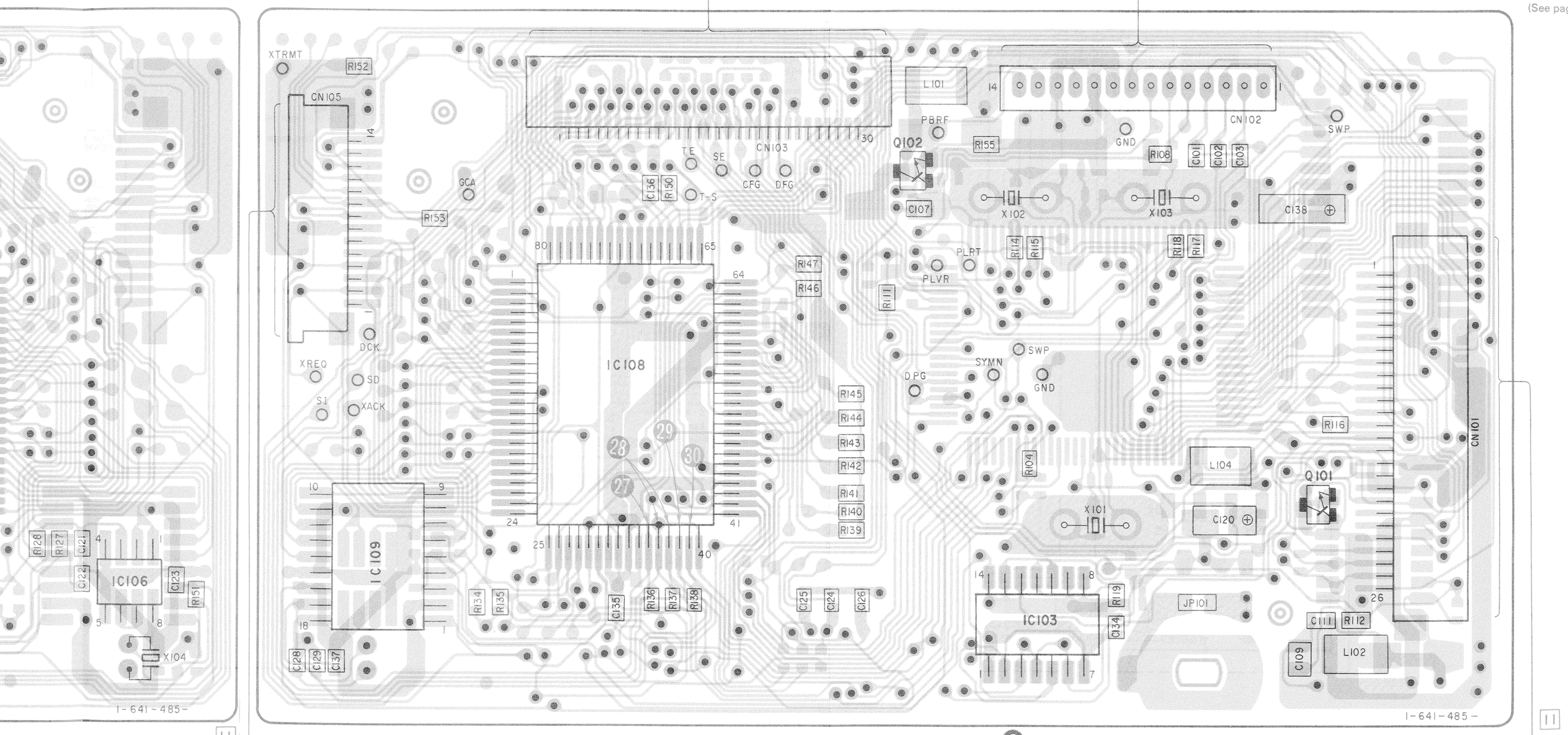
【MAIN BOARD】(CONDUCTOR SIDE)



2 To FL BOARD CN102 ◄

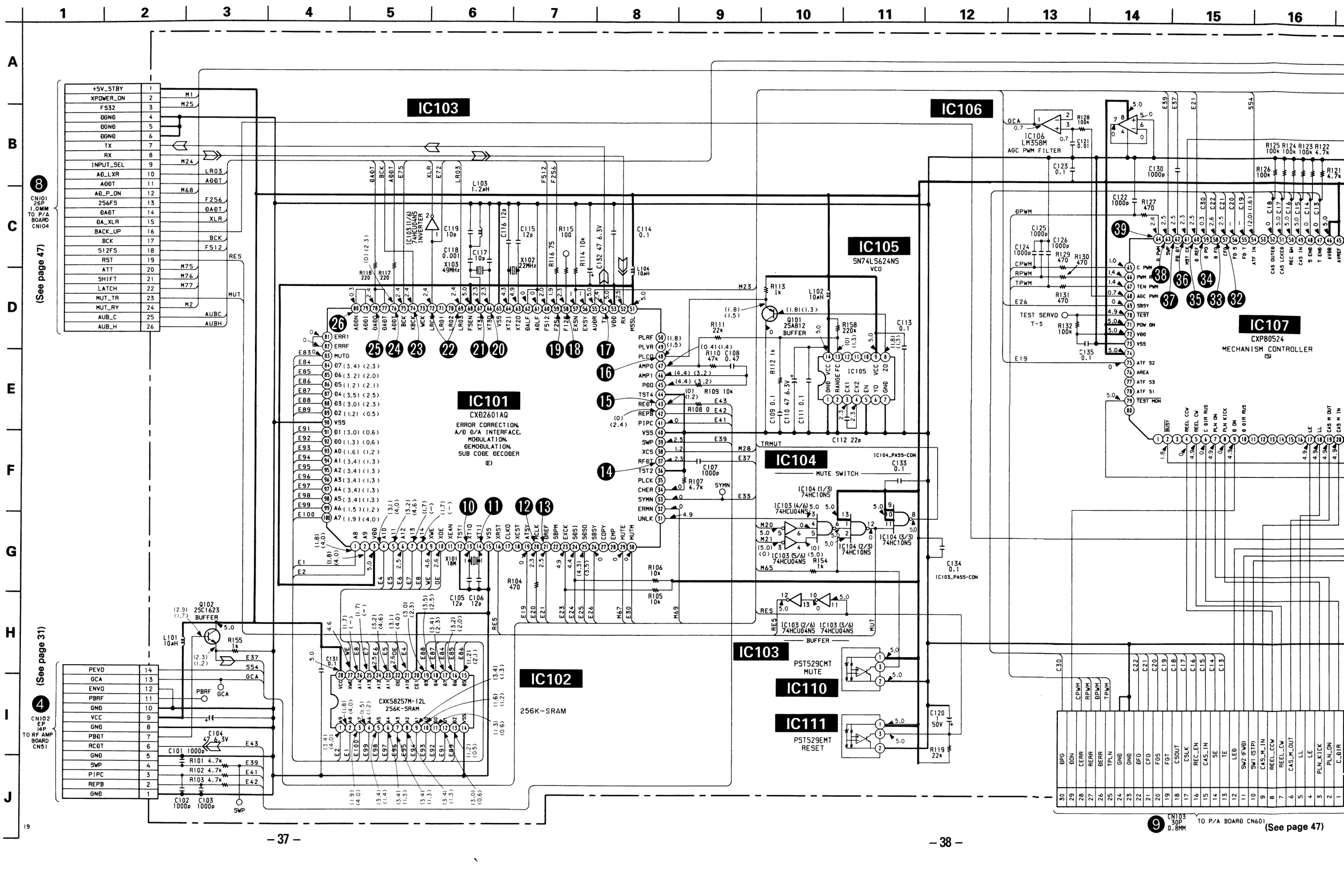
(See page 27)

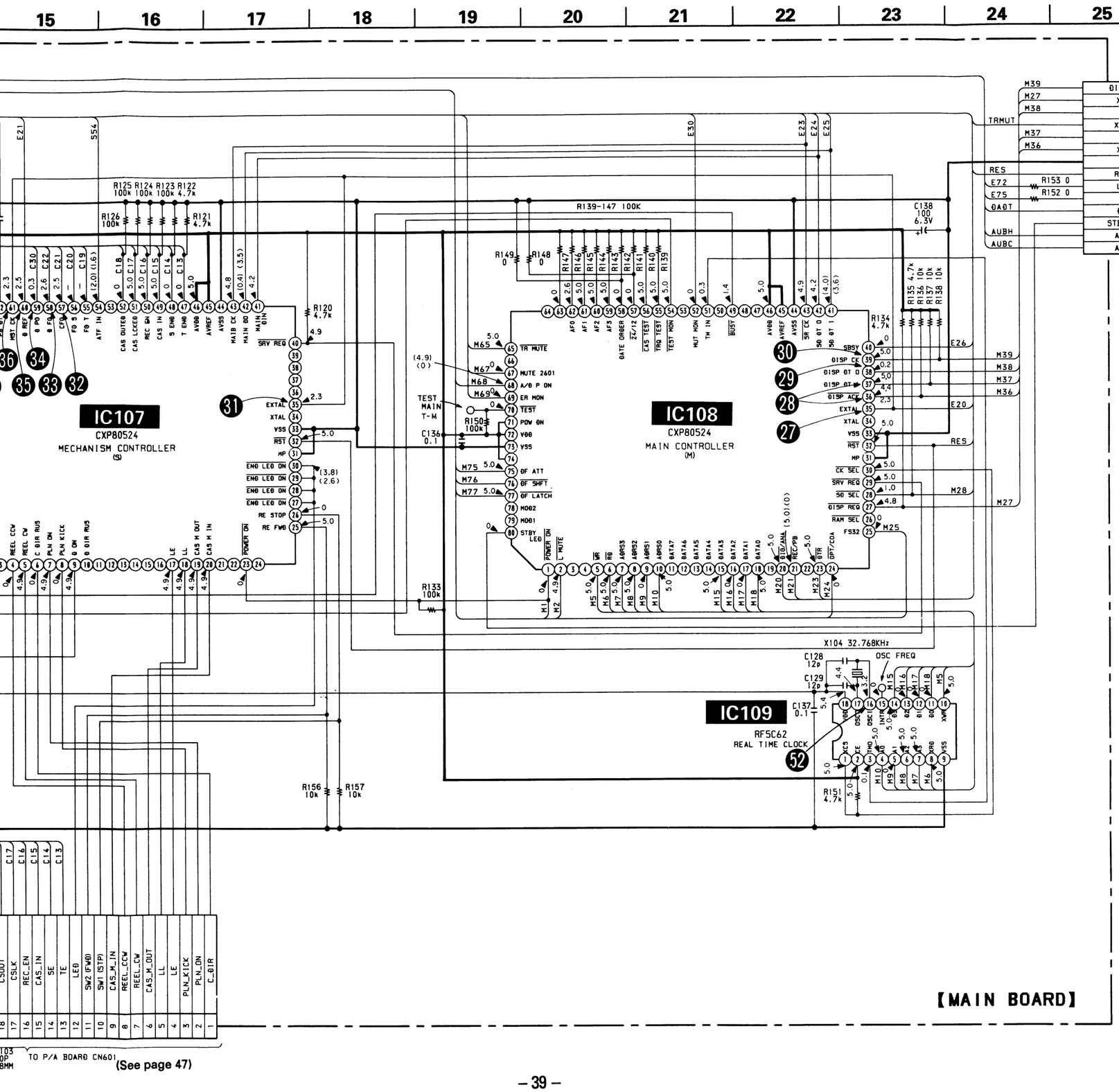
【MAIN BOARD】(COMPONENT SIDE)



4-8. SCHEMATIC DIAGRAM – MAIN SECTION –

• See page 49 for IC block diagrams and 53 for pin functions.





Notes on schematic diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ▬▬ : B + Line.
- Voltage are dc with respect to ground under no-signal (STOP conditions.
  no mark : Stop
  ( ) : PLAY
  < > : REC
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.(See page 21 for waveforms)
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path
  ≫ : PB
  ≫ : REC

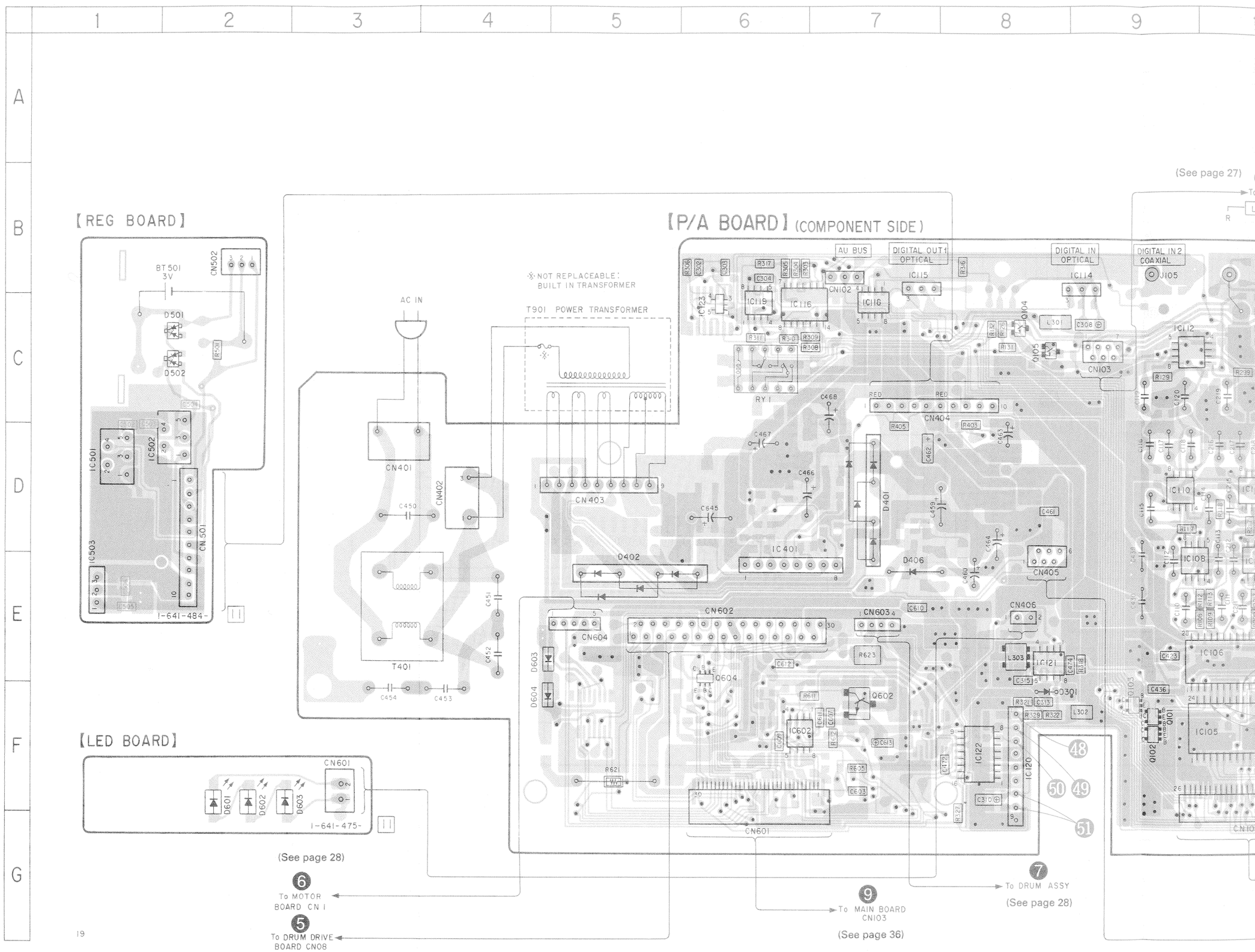
4-9. PRINTED WIRING BOARDS
– AD/DA/POWER SUPPLY SECTION –

• See page 17 for circuit boards location and 23 for semiconductor lead layouts.

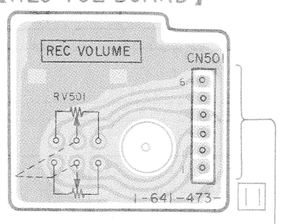
● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D102	F – 12	IC115	B – 7
D103	F – 12	IC116	C – 6
D104	C – 17	IC117	C – 17
D105	D – 12	IC118	C – 7
D106	D – 12	IC119	C – 6
D301	F – 8	IC120	F – 8
D401	D – 7	IC121	E – 8
D402	E – 5	IC122	F – 8
D403	E – 15	IC123	C – 6
D404	D – 16	IC125	F – 10
D405	D – 16	IC401	E – 6
D406	D – 7	IC402	E – 15
D451	B – 8	IC501	D – 1
D501	C – 2	IC502	D – 2
D502	C – 2	IC503	E – 1
D601	F – 1	IC601	F – 16
D601	F – 18	IC602	F – 7
D602	F – 2	IC603	F – 15
D602	E – 17	IC604	F – 18
D603	F – 3		
D603	E – 4		
D604	F – 4	Q101	F – 9
		Q102	F – 9
		Q103	F – 9
IC101	C – 12	Q104	C – 8
IC102	D – 11	Q105	C – 8
IC103	E – 12		
IC104	D – 12	Q106	C – 16
IC105	F – 10	Q401	D – 17
		Q402	D – 16
IC106	E – 10	Q601	F – 17
IC107	E – 13	Q602	F – 7
IC108	E – 10		
IC109	E – 10	Q603	F – 16
IC111	D – 10	Q604	E – 6
		Q605	F – 17
IC112	C – 9	Q606	E – 17
IC114	B – 9		

Notes on printed wiring boards:
- ○——: Indicated a lead wire mounted on the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.



【REC VOL BOARD】

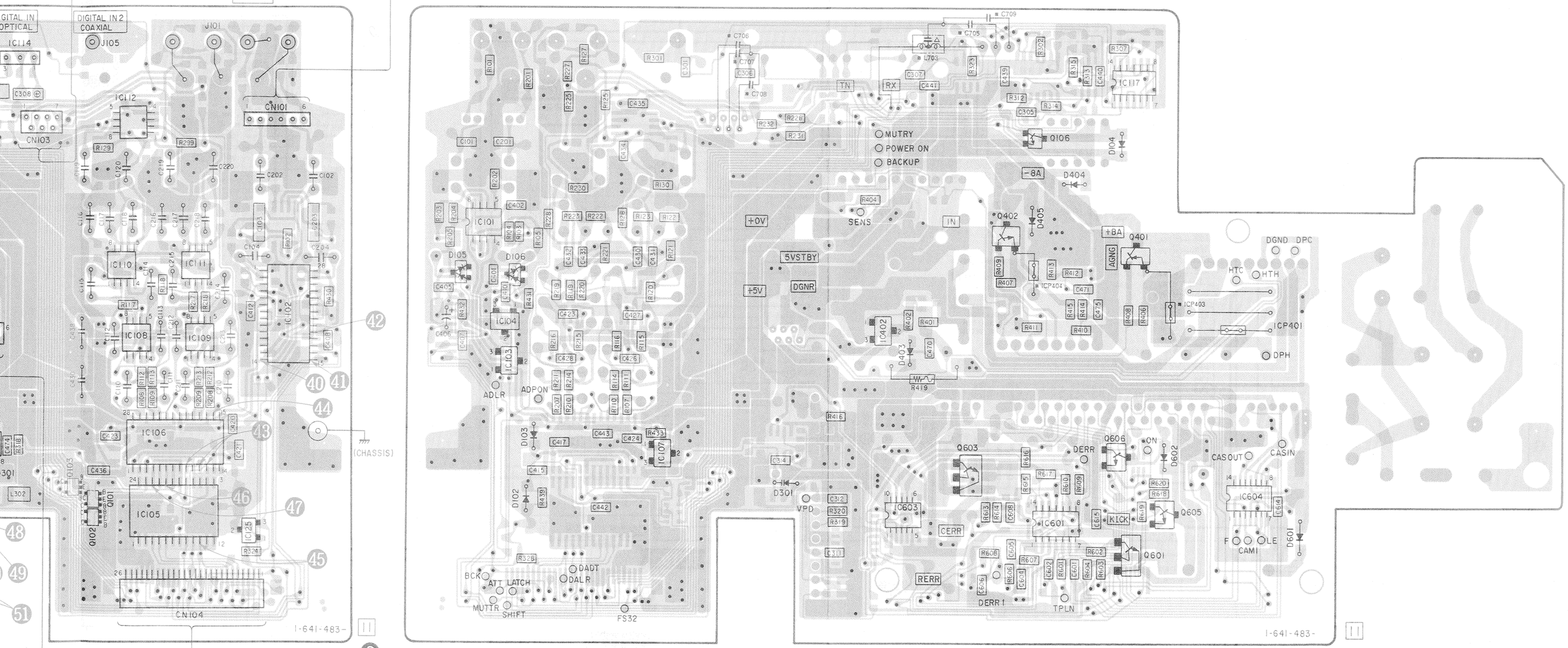


(See page 27) 3 To HEADPHONE BOARD CN401

LINEOUT R L

R — LINE IN — L

【P/A BOARD】(CONDUCTOR SIDE)

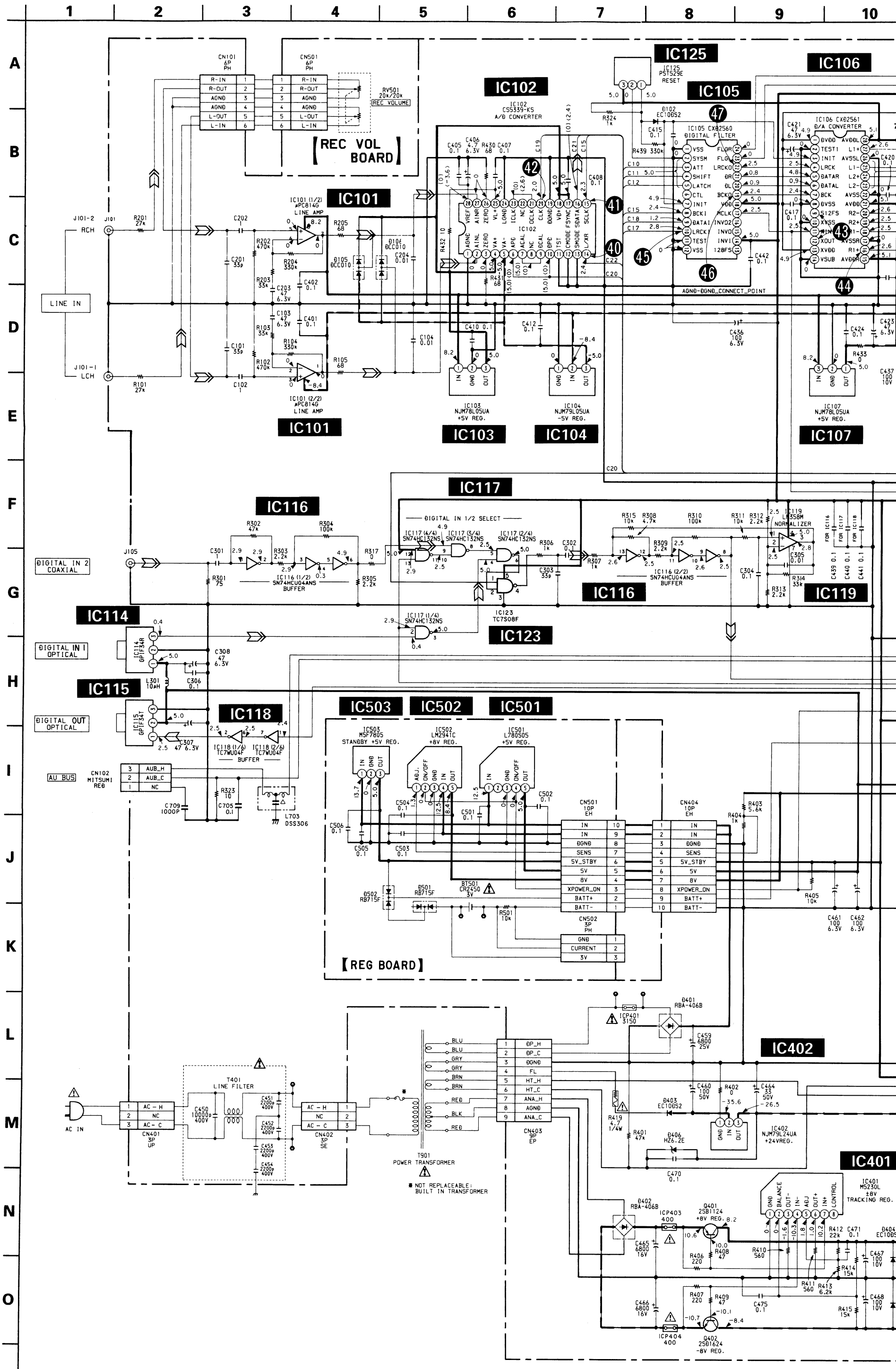


8 To MAIN BOARD CN101 (See page 36)

1 To FL BOARD CN101 (See page 27)

4-10. SCHEMATIC DIAGRAM – AD/DA/POWER SUPPLY SECTION –

• See page 49 for IC block diagrams and 53 for pin functions.



8 9 10 11 12 13 14 15 16 17 18 19

【P/A

IC125 IC106 IC105 IC108 IC110 IC112 IC107 IC111 IC109 IC119 IC120 IC122 IC601 IC603 IC602 IC604 IC401 IC402

IC125 PST529E RESET

IC105 CXØ2560 ØIGITAL FILTER

IC106 CXØ2561 Ø/A CONVERTER

ACTIVE FILTER

IC108 NJM5532M

IC110 NJM5532M

IC111 NJM5532M

IC109 NJM5532M

IC107 NJM78L05UA +5V REG.

IC119 LM358M NORMALIZER

IC116 (2/6) SN74HCU04ANS BUFFER

IC120 TC5081AP PHASE COMPARATOR

VCO

IC121 TC7WU04F

IC122 74HC4020 PRESCALER

MUTING

TENSHION PWM FILTER/ØRIVER

IC601 (1/4) LM324M

PLUNGER SWITCH

ØRUM PWM FILTER

REEL PWM FILTER

CAPSTAN PWM FILTER/ØRIVER

IC601 (2/4)

IC601 (3/4) LM358M

IC601 (4/4)

IC603 LB1638M REEL MOTOR ØRIVE

IC604 LB1836M CASSE-COM/CAM MOTOR ØRIVE

IC401 M5230L ±8V TRACKING REG.

IC402 NJM79L24UA +24VREG.

AGNØ-ØGNØ_CONNECT_POINT

CN404 10P EH

1	IN
2	IN
3	ØGNØ
4	SENS
5	5V_STBY
6	5V
7	8V
8	XPOWER_ON
9	BATT+
10	BATT-

CN405 6P SMT-ST TO FL BOARØ CN101

+5_STBY	1
F2	2
F1	3
ØGNØ	4
-25V	5
+5_STBY	6

(See page 30)

CN406 2P ØR

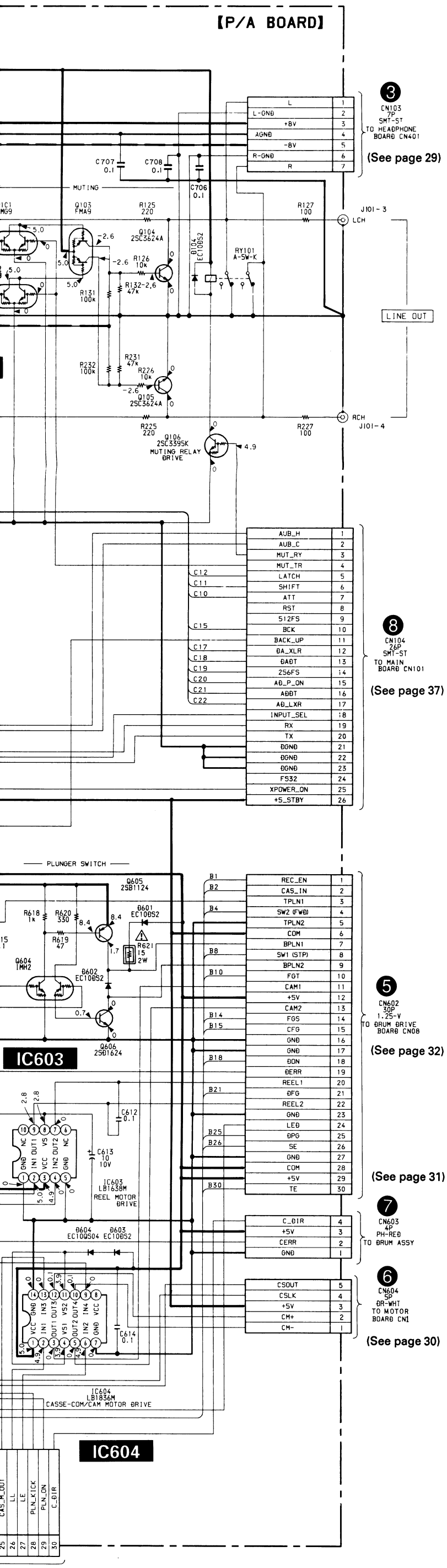
CN601 2P

LAMP+	1
ØGNØ	2

【 LED BOARD 】

CN601 30P 0.8-SMT TO MAIN BOARØ CN103

(See page 38)



(See page 38)

Notes on schematic diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- △ : Internal component
- : Fuse resistor
- : Nonflammable resistor

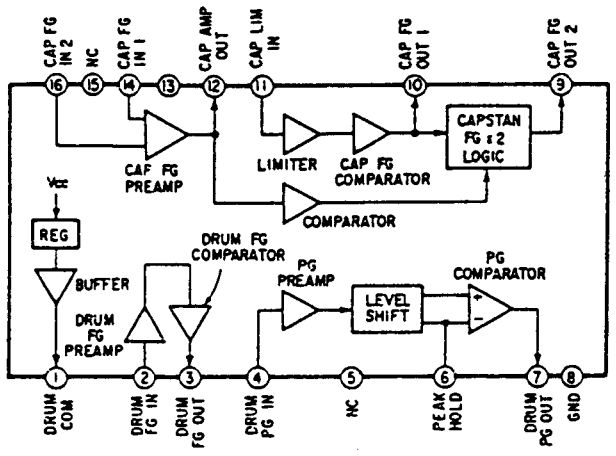
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ——— : B+ Line.
- - - - : B– Line.
- Voltage are dc with respect to ground under no-signal (STOP) conditions.

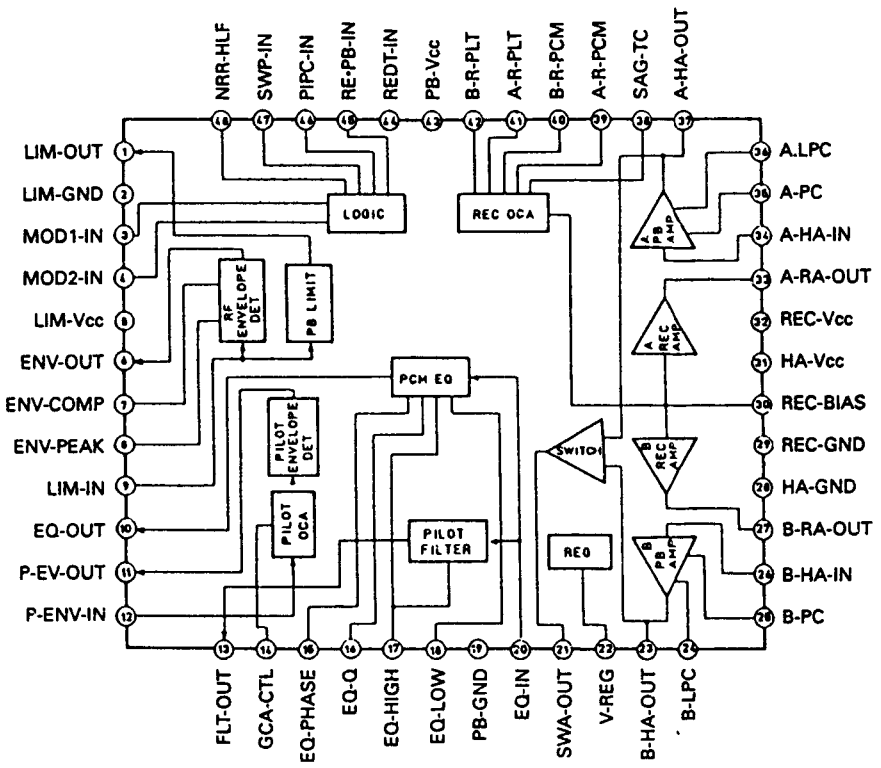
  no mark : Stop
  ( ) : PLAY
  < > : REC
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.(See page 21 for waveforms)
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path
  : PB
  : REC

4-11. IC BLOCK DIAGRAMS

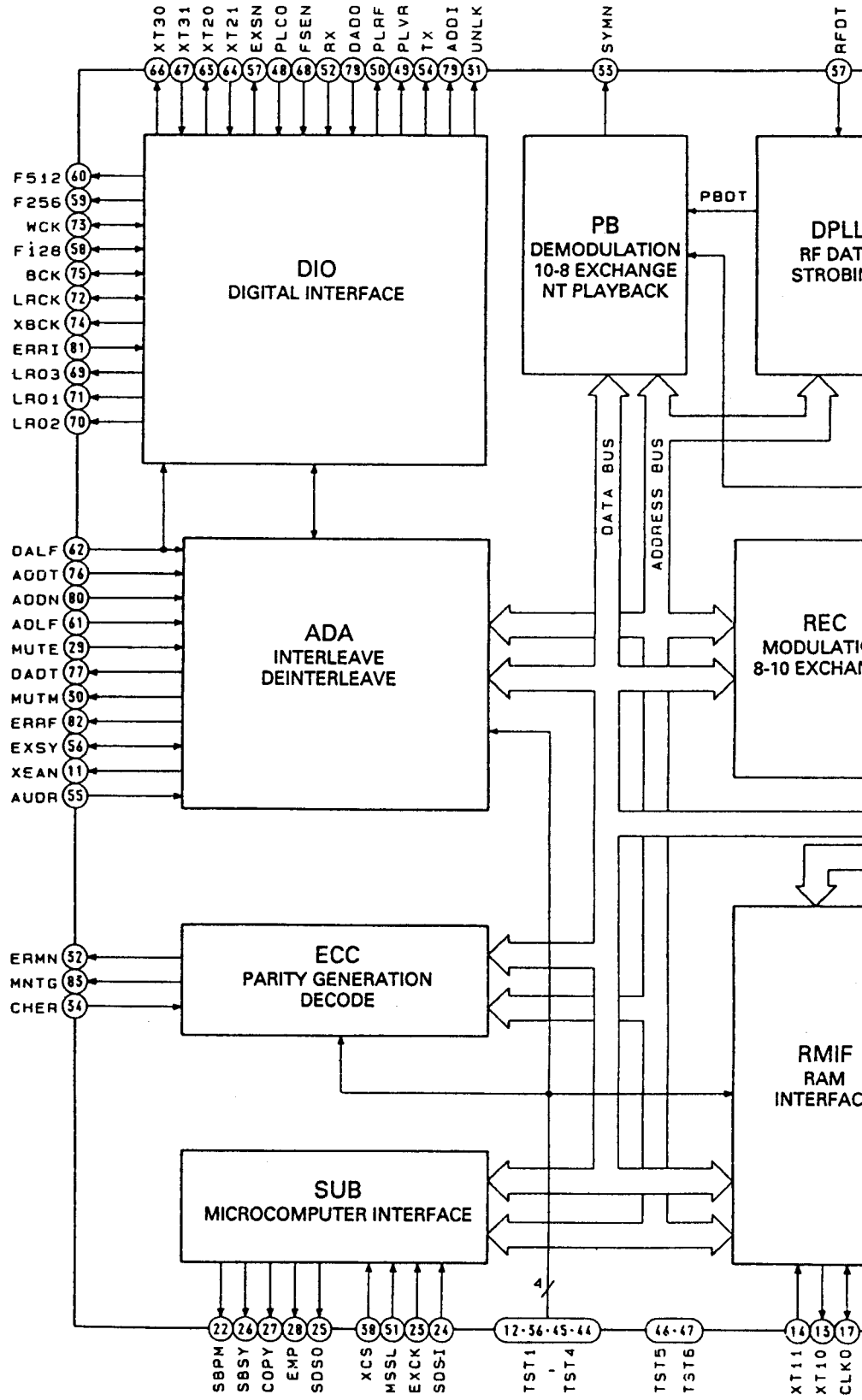
- **DRUM DRIVE BOARD**
  IC01 CX20115A



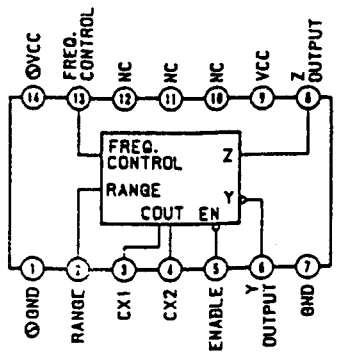
- **RF AMP BOARD**
  IC1 CXA1364R

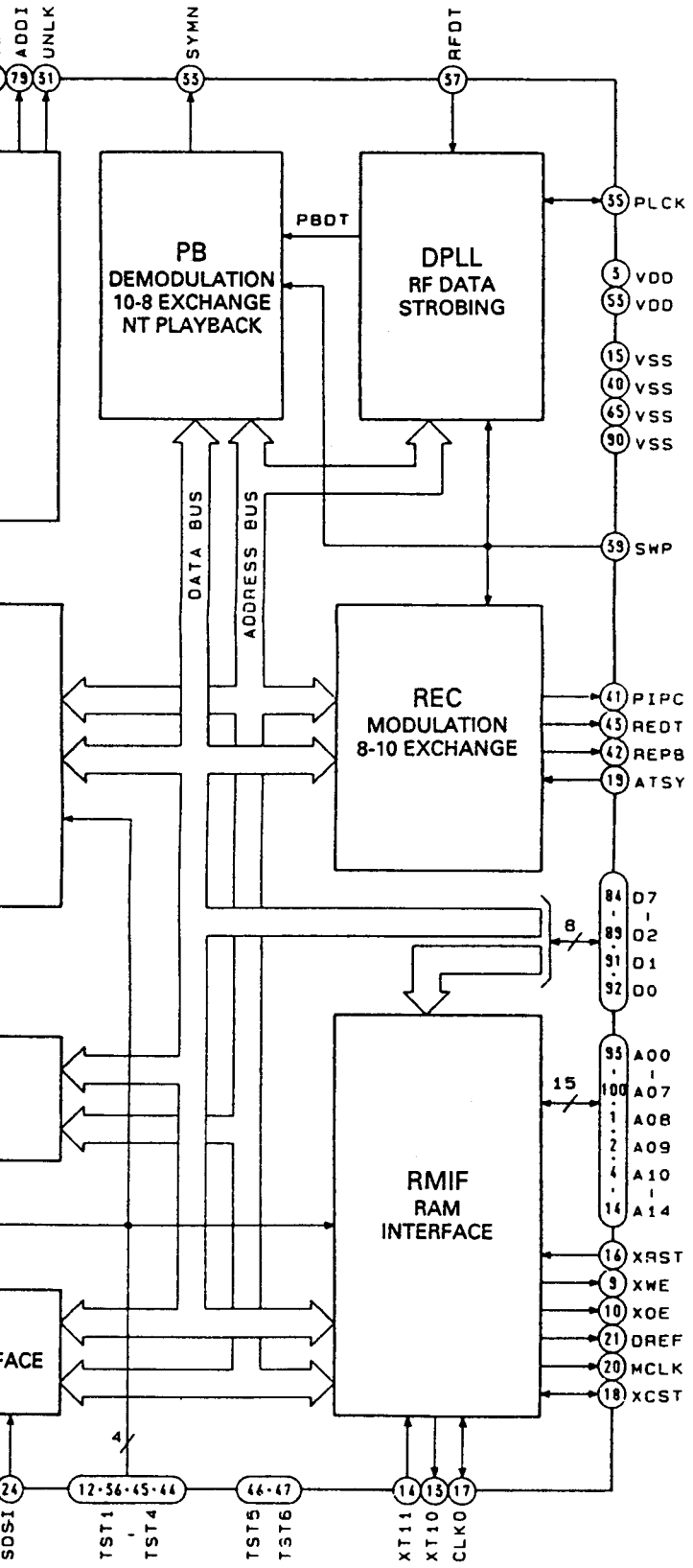


- **MAIN BOARD**
  IC101 CXD2601AQ



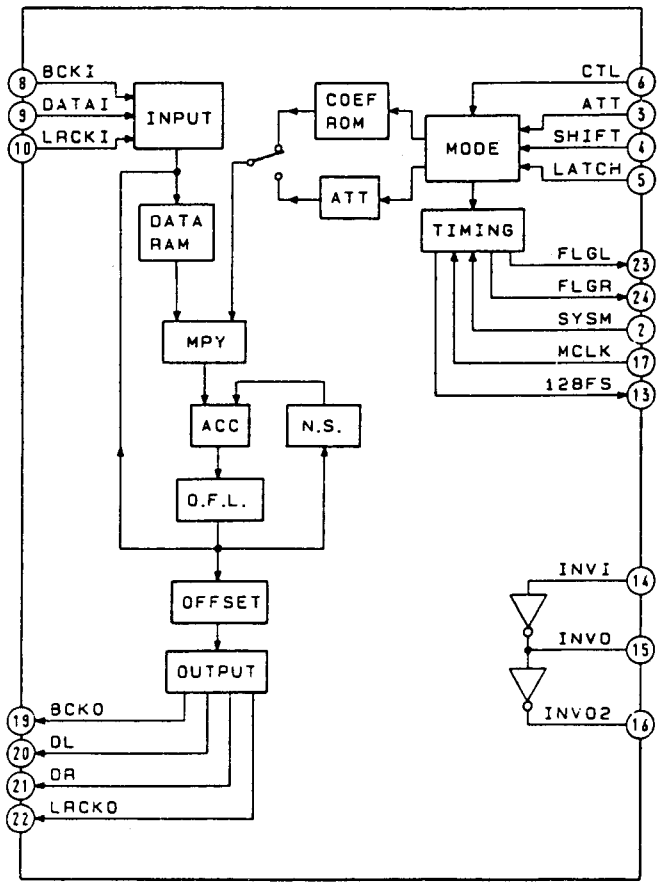
IC105 SN74LS624NS



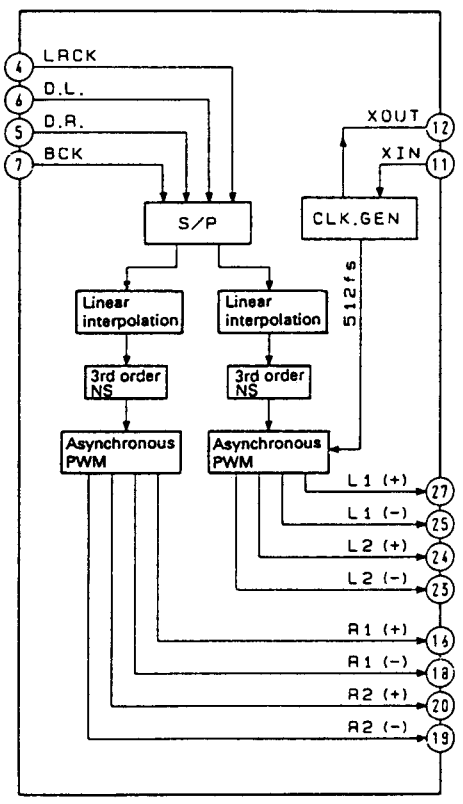


P/A BOARD

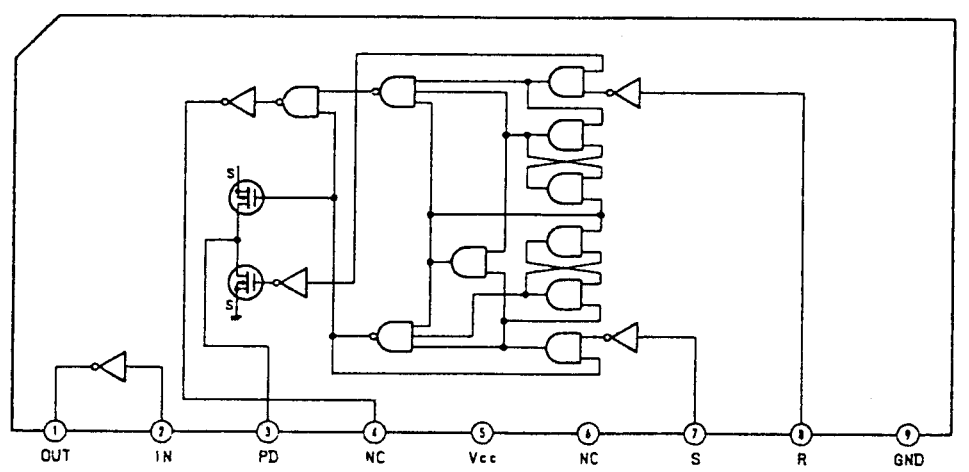
IC105 CXD2560M



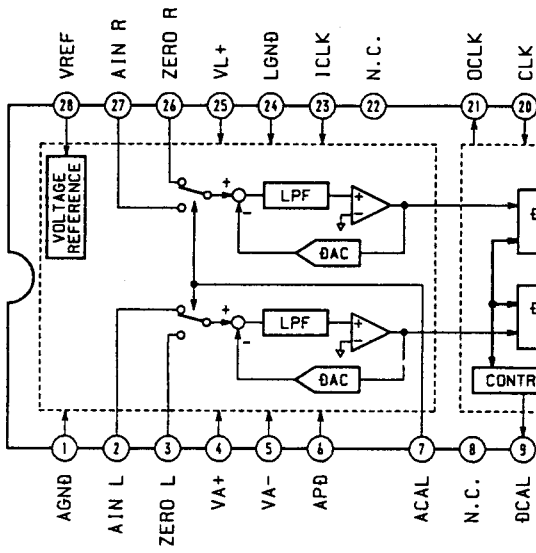
IC106 CXD2561M-1



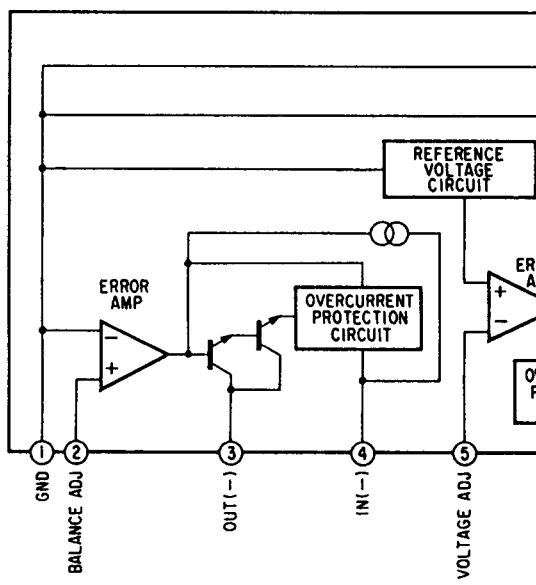
IC120 TC5081AP



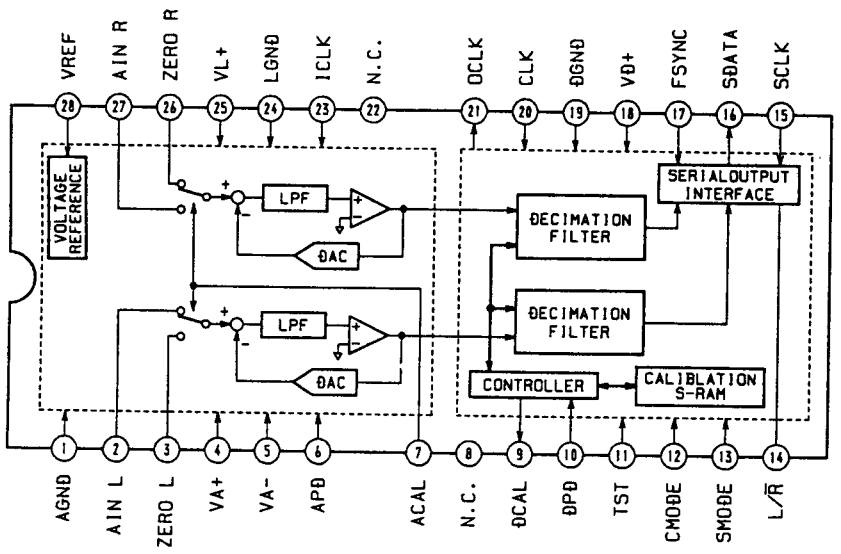
IC121 CS5339-KS



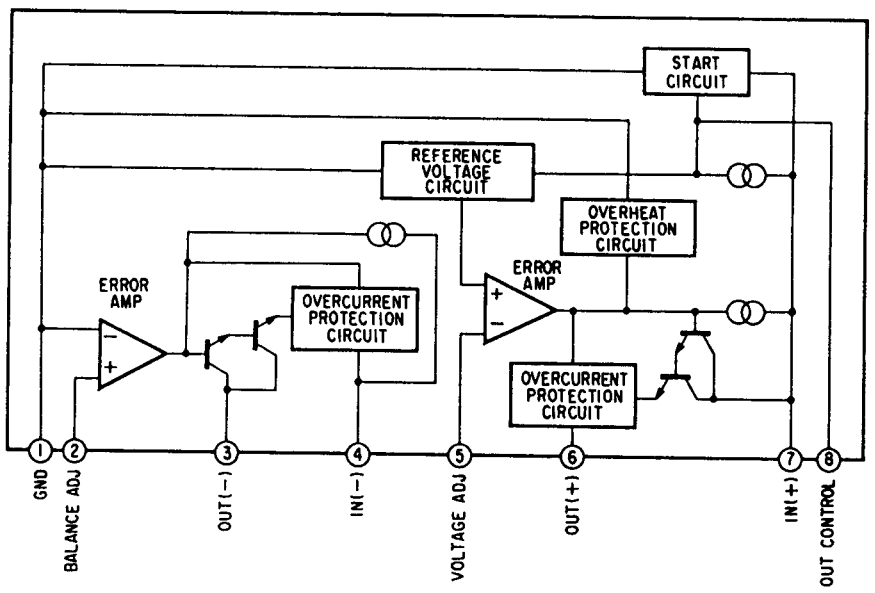
IC401 M5230L

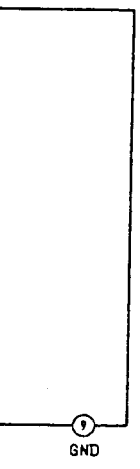


IC121 CS5339-KS

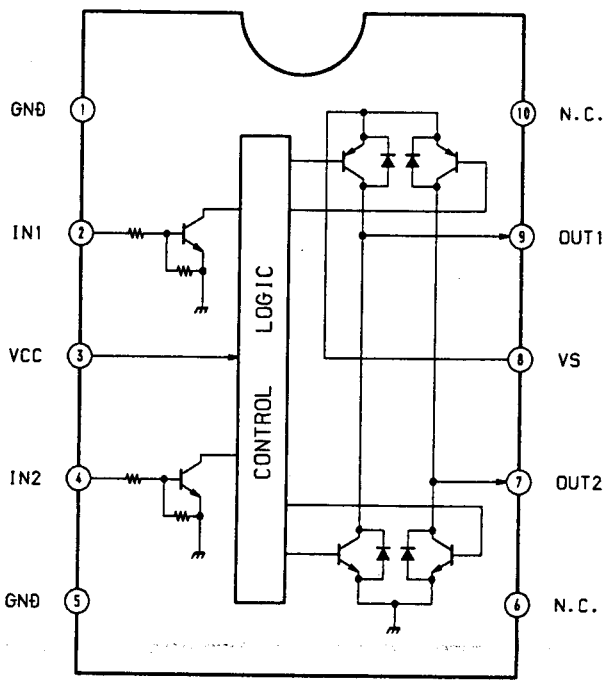


IC401 M5230L

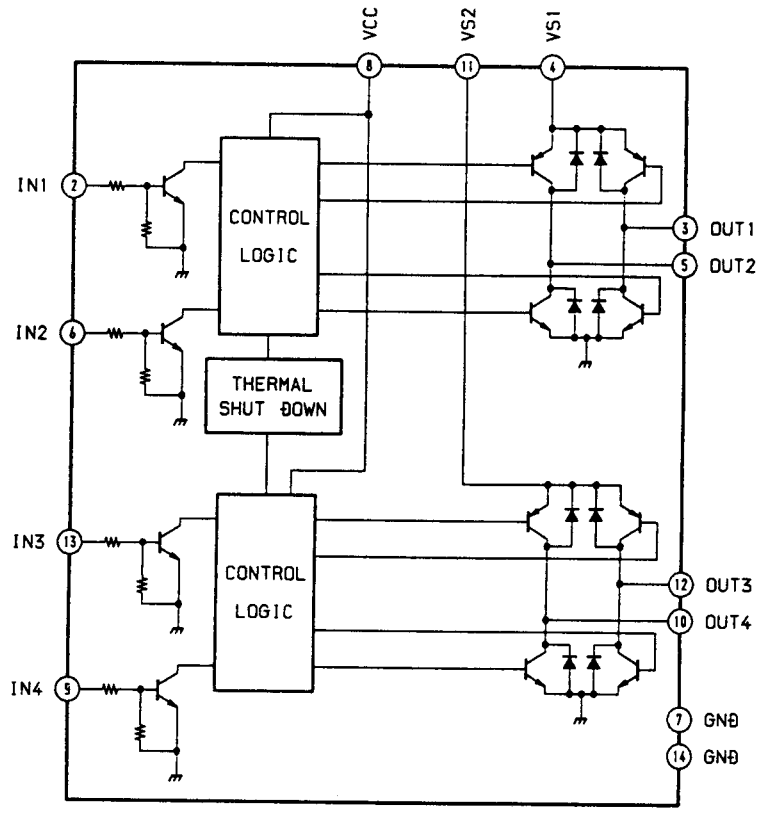




IC603 LB1638M



IC604 LB1836M



4-12. PIN FUNCTIONS

IC101 DAT Signal Processor (CXD2601AQ)

This processor is an LSI to process recording and playback signals of the R-DAT system, in a single chip and provided with digital PLL, modem, error correction circuit, digital I/O, RAM control circuit, etc.

Pin No.	Pin Name	I/O	Description
1, 2	A08, A09	I/O	RAM address A08, A09
3	VDD	—	5 V
4-6	A10-A12	I/O	RAM address A10-A12
7, 8	A13, A14	O	RAM address A13, A14
9	XWE	O	RAM write enable signal
10	XOE	O	RAM output enable signal
11	XEAN	O	External addressing bus interrupt enable signal
12	TST1	I	Test pin (normally "L")
13	XT1O	O	18.816 MHz crystal oscillator output
14	XT1I	I	18.816 MHz crystal oscillator input
15	VSS	—	GND
16	XRST	I	Reset pin (normally"H")
17	CLKO	I/O	18.816 MHz clock output
18	XCST	I/O	SYEK (internal system clock) generation CLKO division timing signal
19	ATSY	I	ATF sync signal input
20	MCLK	O	9.408 MHz clock output
21	DREF	O	Drum servo reference signal
22	SBPM	O	Discrimination signal determining whether the subcode I/O clock (EXCK) is accepted ("L": accept, "H": ignore)
23	EXCK	I	Subcode I/O data transfer clock (DUTY50)
24	SDSI	I	Subcode serial data input
25	SDSO	O	Subcode serial data output
26	SBSY	O	Subcode I/O sync signal
27	COPY	O	Copy data output
28	EMP	O	Emphasis data output
29	MUTE	I	Mute pin
30	MUTM	O	Mute discrimination signal ("H": muted)
31	UNLK	O	RX PLL lock discrimination signal ("H": locked)
32	ERMN	O	Detects presence or absence of RF ("H": RF present, "L" during REC)
33	SYMN	O	C1 check result for RF ("H": OK)
34	CHER	I	Signal for discriminating whether C2 is 1 or 2 times (C2 → C1 → C2 or C1 → C2) ("H": 1 time, "L":2 times)
35	PLCK	I/O	RF PLL clock output
36	TST2	I	Test pin (normally "L")
37	RFDT	I	RF signal input
38	XCS	I	Subcode I/O chip select ("L": select)
39	SWP	I	RF switching pulse ("L": A-CH, "H": B-CH)
40	VSS	—	GND
41	PIPC	O	REC data PILOT/PCM discrimination signal ("H": PILOT, during playback: always "L")
42	REPB	O	Record/playback switching signal ("H": record)
43	REDT	O	Recording signal output, fixed "L" during playback
44	TST4	I	Test pin (normally "L")
45	TST3	O	RX APLL PD output (comparator output)
46	TST5	I	RX APLL oscillator cell amp input
47	TST6	O	RX APLL oscillator cell amp inverted output
48	PLCO	I	RX APLL external VCO clock input
49	PLVR	O	RX APLL comparison signal when external comparator is active (Vin) Not in use

Pin No.	Pin Name	I/O	Description
50	PLVF	O	RX APLL comparison signal when external comparator is active (Rin) Not in use
51	MSSL	I	Master/slave setting ("H": master (fixed with the equipment), "L": slave)
52	RX	I	Digital input
53	VDD	—	5 V
54	TX	O	Digital output
55	AUDR	I	Audio mode/data recorder mode setting ("H": audio mode, "L": data recorder mode)
56	EXSY	I/O	Complete copy sync signal (25/3 - 100/3 Hz)
57	EXSN	I/O	Complete copy sync signal (25/3 - 100/3 Hz)
58	F128	I/O	128fsCK (normal)/256fsCK (×2) (DUTY50)
59	F256	O	256fsCK (normal)/512fsCK (×2) (DUTY50)
60	F512	O	512fsCK (normal)/512fsCK (×2) (DUTY50)
61	ADLF	I	Signal for discriminating whether ADDT serial data is MSB first or LSB first ("H": LSB first)
62	DALF	I	Signal for discriminating whether DADT serial data is MSB first or LSB first ("H": LSB first)
63	XT20	O	22.5792 MHz crystal oscillator output
64	XT21	I	22.5792 MHz crystal oscillator input
65	VSS	—	GND
66	XT30	O	49.152 MHz crystal oscillator output (24.576 MHz in B mode)
67	XT31	I	49.152 MHz crystal oscillator input (24.576 MHz in B mode)
68	FSEN	I	F128, BCK, LRCK input/output switch ("H": output)
69	LR03	O	LR02 inversion
70	LR02	O	LRCK 16BCK delay signal
71	LR01	O	LRCK 15BCK delay signal
72	LRCK	I/O	fs (normal)/2fs (×2) ("L": L-CH, "H": R-CH)
73	WCK	I/O	2fs (normal)/4fs (×2) (input mode only for testing)
74	XBCK	O	BCK inversion
75	BCK	I/O	64fs (normal)/128fs (×2)
76	ADDT	I	Serial AD data (complement of 2)
77	DADT	O	Serial DA data (complement of 2)
78	DADO	I	Digital output (DA) data input (normally connected to DADT)
79	ADDI	O	Digital input (AD) data output (normally connected to ADDN)
80	ADDN	I	Digital input (DA) data input
81	ERRI	I	Digital output V-FLAG data input (normally connected to ERRF)
82	ERRF	O	Signal output for discriminating whether or not DADT has interpolated data ("H": interpolated data)
83	MNTG	O	Error correction status monitor trigger
84-89	D7-D2	I/O	RAM data bus D7-D2
90	VSS	—	GND
91, 92	D1, D0	I/O	RAM data bus D1, D0
93-100	A00-A07	I/O	RAM address A00-A07

IC107 Mechanism/Servo Micro-computer (CXP80524-043Q)

The mechanical deck servo systems are controlled by the captioned micro-computer according to instructions from the main micro-computer (IC108).

Pin No.	Pin Name	I/O	Connected to	Description
1	PAUSE	O		"H" : PAUSE mode of mechanism
2	BUSY	O	Main Micon	Busy (Active "L") to the Main Micon
3	CAP-ON	O		"H" : Rotating is capstan motor
4	REEL_CCW	O	Mechanism	Reel motor CCW ("L": RVS direction) } *1
5	REEL_CW	O	Mechanism	Reel motor CW ("H": FWD direction) } *1
6	C_DIR_RVS	O	Mechanism	Capstan Direction ("L": FWD, "H": RVS)
7	PLN_ON	O	Mechanism	Plunger On
8	PLN_KICK	O	Mechanism	Plunger Kick
9	D_ON	O	Mechanism	Drum On ("H": The drum is revolving)
10	D_DIR_RVS	O	Mechanism	Not in use
11	TRANS-ACT	O		When the mechanism is in transition : "H"
12	FWD	O		Upon X1 FWD : "H"
13	REC-FWD	O		Upon REC : "H"
14	FWD-RUS	O		In FWD queue-reviewing : "H"
15	CAP-X16	O		In 16X fast mode : "H"
16	FF-REW	O		Upon FF. REW : "H"
17	LE	O	Mechanism	Loading Motor Eject } *2
18	LL	O	Mechanism	Loading Motor Load } *2
19	CAS_M_OUT	O	Mechanism	Cassette control motor Out } *3
20	CAS_M_IN	O	Mechanism	Cassette control motor In } *3
21	SPD-05	O		When the mechanism is rotating in long-time mode : "H" } Mechanism monitor output
22	SPD-15	O		When the mechanism is rotating in 15X fast mode : "H" } Mechanism monitor output
23	POWER ON	I	Main Micon	Upon Power Supply ON : "L"
24		—		Not in use
25	RE_FWD	I	Mechanism	Encoder SW2 } *4
26	RE_STOP	I	Mechanism	Encoder SW1 } *4
27-30	END_LED_ON	O	Mechanism	End sensor ON Illuminated upon "L" (rectangular wave of about 1kHz). It is not output unless a cassette is mounted ("H").
31	MP	I		Microprocessor mode selected (the equipment is fixed at "L").
32	RST	I		System Reset (low active)
33	Vss	—		Power terminal (GND)
34	XTAL	O		System Clock Output
35	EXTAL	I	CXD2601AQ	System Clock Input (9.408 MHz)
36-39		—		Not in use
40	X_SRV_REQ	I	Main Micon	Request for communication from the Main Micon
41	MAIN_DT_I	I	Main Micon	Serial Input from the Main Micon
42	MAIN_DT_O	O	Main Micon	Serial Output to the Main Micon
43	MAIN_CK	I	Main Micon	Serial Clock with the Main Micon
44	AVss	—		GND for A/D
45	AVref	—		Reference Voltage for A/D (+5 V)
46	AVdd	—		Power Supply for A/D (+5 V)
47	T_END	I	Mechanism	Take-up side end sensor input (analog) } Magnetic matter: 0V, Leader tape: AC (*5)
48	S_END	I	Mechanism	Supply side end sensor input (analog) } Magnetic matter: 0V, Leader tape: AC (*5)
49	CAS_IN	I	Mechanism	Cassette-in switch (S01). "H": Cassette is mounted.
50	REC_EN	I	Mechanism	Rec-enable switch (S01). "H": REC enabled.
51	CAS_LCKed	I	Mechanism	Casecon locked Upon completion of loading: "H"

Pin No.	Pin Name	I/O	Connected to	Description
51	CAS_LCKed	I	Mechanism	Casecon locked Upon completion of loading: "H"
52	CAS_OUTed	I	Mechanism	Casecon outed Upon completion of loading OUT: "H"
53		I		Not in use
54	ATF_IN	I	RF Amp	ATF PILOT input
55	FG_T	I	Mechanism	Reel FG (T Side) 6/24Hz (Small reel diameter) -
56	FG_S	I	Mechanism	Reel FG (S Side) 15/24Hz (Large reel diameter) (In SP FWD)
57	C_FG	I	Mechanism	Capstan FG SP: 674 Hz, LP: 337 Hz
58	D_FG	I	Mechanism	Drum FG 400 Hz: LP REC, 800 Hz: Other modes
59	D_PG	I	Mechanism	Drum PG Other than LP REC: 800/24Hz
60	D_REF	I	CXD2601AQ	Drum Reference In LP REC: 400/24Hz
61	MST_CK	I	CXD2601AQ	Master clock (9.408MHz)
62	PB_DT	I	RF Amp	PB Data input to create ATF Sync
63	SWP	O	CXD2601AQ	Switching Pulse "L": Ach, "H": Bch
64	D_PWM	O	Mechanism	PWM Out for Drum
65	C_PWM	O	Mechanism	PWM Out for Capstan
66	PWM_R	O	Mechanism	PWM Out for Reel
67	TEN_PWM	O	Mechanism	PWM Out for Tension Regulator Plunger
68	AGC_PWM	O	RF Amp	PWM Out for AGC
69	SBSY	I	CXD2601AQ	↓ of subsync is detected (XINT2).
70	$\overline{\text{TEST}}$	I	Pull-up	Test Mode (active "L")
71	POW_DN	I		Not in use
72	Vdd	—		Power terminal (+5 V)
73	Vss	—		Power terminal (GND)
74		—		Not in use
75	ATF_S2	O	CXD2601AQ	ATF Sampling Pulse
76-78		—		Not in use
79	X_TEST_MON_S	O		"L" : Test mode (Monitor output of pin70)
80		O		Not in use

* 1 Reel motor control

	CCW(counterclockwise)	CW(clockwise)
STOP(only in POWER ON)	L	L
FWD	L	H
RVS	H	L
Prohibit	H	H

*2 Loading motor control

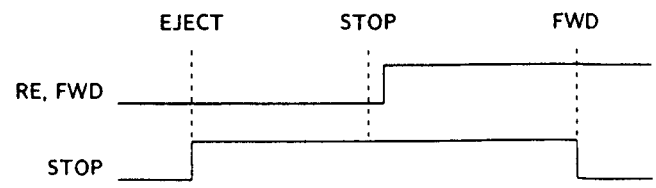
	LE	LL
—	L	L
LOAD	L	H
EJECT	H	L
Brake	H	H

*3 Casecon motor control

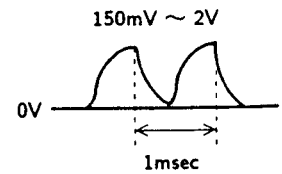
	OUT	IN
—	L	L
IN	L	H
OUT	H	L
Brake	H	H

*4 Encoder

RF-FWD	RE_STOP	Position
L	L	EJECT
L	H	STOP UNLD-STOP
H	L	FWD
H	H	STOP-FWD



*5 End sensor



With leader tape

IC108 Main Micro-computer (CXP80524-044Q)

This Micro-computer generally controls the operation of the equipment while exchanging data with the display Micro-computer (IC101) and mechanism/servo Micro-computer (IC107) in serial communications, including the DAT signal processor (IC101), clock (IC109), digital filter (IC105) and other IC.

Pin No.	Pin Name	I/O	Connected to	Description
1	$\overline{\text{POWER ON}}$	O	IC501,502 (REGULATOR BOARD)	Power supply ON/OFF control. "L" : Power on
2	$\overline{\text{L\_MUTE}}$	O	Line Out	Line Mute (Active "L")
3	$\overline{\text{TEST\_MON\_M}}$	O		"L" : Test mode (Monitor output of pin ⑦⓪)
4		O		Not in use
5	$\overline{\text{WRT}}$	O	Clock IC	Write request (Active "L")
6	RD	O	Clock IC	Read request (Active "L")
7-10	ADRS_3-0	O	Clock IC	Address 3-0 (Address BUS)
11-14	DATA_7-4	I/O		DATA 7-4 (DATA BUS). Not in use with the equipment
15-18	$\overline{\text{DATA\_3-0}}$	I/O	Clock IC	DATA 3-0 (DATA BUS)
19	$\overline{\text{ATT\_EXT}}$	O	CXD1136Q	Fade attenuator ck externally selected (Active "L")
20	$\overline{\text{DIG}}$/ANA	O	CXD1136Q	Fade In/Out switching for DIG ("L")/ANA ("H")
21	$\overline{\text{REC}}$/PB	O	CXD1136Q	Fade In/Out REC switching for ("L")/PB ("H")
22	$\overline{\text{ATT\_CK}}$	O	CXD1136Q	Clock for fade In/Out
23	$\overline{\text{DTR}}$	O	CXD2601AQ	Audio use ("H")/Data Recorder use ("L). Becomes "L" in after-recording and searching.
24	$\overline{\text{OPT/COA}}$	O	Digital I/O	Switching for Optical ("L")/Coaxial ("H")
25	FS32	O	1Bit DAC	"H" upon Fs = 32kHz. "L" for others.
26	$\overline{\text{RAM\_SEL}}$	O		Not in use
27	$\overline{\text{DISP\_REQ}}$	O	Display Micon	Request for communication with the Display Micon ("L" Active)
28	$\overline{\text{SD\_REQ}}$	O	CXD2601AQ	Request for communication with CXD2601 ("L" Active)
29	$\overline{\text{SRV\_REQ}}$	O	Mechanism Micon	Request for communication with the Mechanism Micon ("L" Active)
30	$\overline{\text{CLOCK\_SEL}}$	O	Clock IC	Clock IC chip selected
31	MP	I		Microprocessor mode selected (fixed at "L" with the equipment)
32	$\overline{\text{RST}}$	I		System Reset ("L" Active)
33	Vss	—		Power terminal (GND)
34	XTAL	O		System Clock Output
35	EXTAL	I	CXD2601AQ	System Clock Input (9.048 MHz)
36	$\overline{\text{DISP\_ACK}}$	I	Display Micon	ACKnowledge (Active "L")
37	DISP_DT_I	I	Display Micon	Serial Input
38	DISP_DT_O	O	Display Micon	Serial Output
39	DISP_CK	I	Display Micon	Serial clock
40	$\overline{\text{SBSY}}$	I	CXD2601AQ	Subcode sync
41	SR_DT_IN	I	CXD2601AQ & Mechanism Micon	Serial Data In
42	SR_DT_OUT	O		Serial Data Out
43	$\overline{\text{SR\_CK}}$	I/O		Serial clock (In/Out) to Sub Code Interface
44	AVss	—		GND for A/D
45	AVref	—		Reference Voltage for A/D (+5 V)
46	AVdd	—		Power Supply for A/D (+5 V)
47		I		Not in use
48		I		Not in use
49	$\overline{\text{BUSY}}$	I	Mechanism Micon	Mechanism servo micon Busy (Active "L")
50	AU_BUS_IN	I	Audio Bus	Not in use

Pin No.	Pin Name	I/O	Connected to	Description
51	TM_IN	I	Clock IC	TM_OUT for clock IC
52	MUT_MON	I	CXD2601AQ	Mute monitor (Active "H")
53		—		Not in use
54	$\overline{\text{TEST\_MON\_M}}$	I	Mechanism Micon	"L" : Test mode is mechanism Micon (Monitor output of Mechanism Micon pin ⑦⓪)
55	$\overline{\text{TRQ\_TEST}}$	I	Pull-up	Not in use
56	$\overline{\text{NO\_CAS\_TEST}}$	I	Pull-up	Not in use
57	TIME_24/12	I	Pull-up	Time indication "H": 12 hours (AM, PM) "L": 24 hours display
58	DATE_ORDER	I	Pull-up	Order of DATA display "H": Year, month and day "L": Month, day and year
59-62	AF_3-0	I	Pull-up	Not in use
63	PIXY_SYSTEM	O		Moniter output of Remote controller mode. "H" : Connected AU BUS, "L" : No connected
64	$\overline{\text{L\_MUTE}}$	O	Pull-up	Line Mute (Active "L"). Not in use with the equipment
65	$\overline{\text{TR\_MUTE}}$	O	Line Out	Transistor Mute (Active "L")
66		—		Not in use
67	MUTE_2601	O	CXD2601AQ	Mute for CXD2601 (Active "H")
68	A_D_PWR_DWN	O	CS5339	A/D Converter Power Down Mode (Active "H"). The AD converter is turned OFF upon digital input/output.
69	$\overline{\text{ER\_MON}}$	I	CXD2601AQ	Error Monitor (Data Valid)
70	TEST	I	Pull-up	Test Mode (Active "L")
71	POW_DN	I	+5 V	Not in use
72	Vdd	—		Power terminal (+5V)
73	Vss	—		Power terminal (GND)
74		—		Not in use
75	D_F_ATT	O	CXD2560M	Communication line (Serial Data) with Digital Filter
76	D_F_$\overline{\text{SHIFT}}$	O	CXD2560M by ↑)	Communication line with Digital Filter (Shift Clock; shifted by ↓ and taken in
77	D_F_$\overline{\text{LATCH}}$	O	CXD2560M	Communication line (Latch Pulse) with Digital Filter
78, 79	MODE2, 1	O	CXA1364R	Mode Control of the RF amplifier
80	STANDBY_LED	O	REMOCON BOARD	Stand-by LED (D301) control. "H" : LED on

IC109 Real Time Clock (RF5C62)

The Clock is an IC for clock and calendar and backed up by a lithium battery when the power supply to the set is OFF.

Pin No.	Pin Name	I/O	Description
1	$\overline{\text{CS}}$	I	Chip select input. Active "L"
2	CE	I	Chip enable input. Active "H"
3	TMOUT	O	Interval output
4-7	A0-3	I	4 bit address input
8	$\overline{\text{RD}}$	I	Read-out control input
9	Vss	—	Power terminal (GND)
10	$\overline{\text{WR}}$	I	Write-in control input
11-14	D0-3	I/O	4 bit data input/output
15	$\overline{\text{INTR}}$	O	Interrupt output. A 2048Hz signal is output here with the equipment.
16	OSCIN	I	Clock input (32.768kHz)
17	OSCOUT	O	Clock output
18	V_{DD}	—	Power terminal (+5 V)

IC106 Pulse D/A Converter (CXD2561M)

The Converter is a small, high-performance 1 bit pulse D/A converter that provides 4 asymmetrical PWM wave outputs in each ch of L/R.

Pin No.	Pin Name	I/O	Description
1	DV_{DD}	—	Digital power supply
2	TEST	I	Test terminal. Normally fixed at "L."
3	INIT	I	Again synchronized at the buildup edge of the signal.
4	LRCKI	I	LRCK input
5	DRI	I	Rch data input
6	DLI	I	Lch data input
7	BCKI	I	BCK input
8	DVss	—	Digital GND
9	512Fs	O	512Fs output
10	XVss	—	Clock GND
11	XIN	I	X'tal oscillator input terminal (512Fs)
12	XOUT	O	X'tal oscillator output terminal
13	XV_{DD}	—	Clock power supply
14	VSUB	—	Substrate. Connected to GND.
15	$AV_{DD}R$	—	Analog power supply
16	R1 (+)	O	Rch PLM output 1 (normal phase)
17	AVssR	—	Analog GND
18	R1 (–)	O	Rch PLM output 1 (reverse phase)
19	R2 (+)	O	Rch PLM output 2 (normal phase)
20	R2 (–)	O	Rch PLM output 2 (reverse phase)
21	AV_{DD}	—	Analog power supply
22	AVss	—	Analog GND
23	L2 (–)	O	Lch PLM output 2 (reverse phase)
24	L2 (+)	O	Lch PLM output 2 (normal phase)
25	L1 (–)	O	Lch PLM output 1 (reverse phase)
26	AVssL	—	Analog GND
27	L1 (+)	O	Lch PLM output 1 (normal phase)
28	$AV_{DD}L$	—	Analog power supply

IC105 Digital Filter (CXD2560M)

The Filter is a digital audio 8x oversampling digital filter with builtin L/R 2ch filter, noise shaping attenuator, soft muting deemphasis, etc.

Pin No.	Pin Name	I/O	Description
1	Vss	—	Power terminal (GND)
2	SYSM	I	System mute input. Effective upon "H"
3	ATT	I	ATT data input in CTL "L." EMP input upon CTL "H."
4	SHIFT	I	Shift clock input upon CTL "L." FS32 input upon CTL "H."
5	LATCH	I	Latch clock input upon CTL "L." FS48 input upon CTL "H."
6	CTL	I	Pull-down in the IC. Direct input mode upon "H." Serial transfer mode upon "L."
7	INIT	I	Synchronized again at the buildup edge of the signal.
8	BCKI	I	BCK input
9	DATAI	I	Data input
10	LACKI	I	LRCK input
11	TEST	I	Test terminal. Fixed at "L" during normal use.
12	Vss	—	Power terminal (GND)
13	128Fs	O	128Fs clock output
14	INVI	I	Inverter input
15	INVO	O	Inverter output
16	INVO2	O	Inverter output
17	MCLK	I	Master clock input (f=512Fs)
18	V_{DD}	—	Power terminal (+5 V)
19	BCKO	O	BCK output
20	DL	O	Lch data output
21	DR	O	Rch data output
22	LRCKO	O	LRCK output
23	FLGL	O	Lch ø mute flag output
24	FLGR	O	Rch ø mute flag output

IC101 Display Micro-computer (CXP50112-254Q)

The Micro-computer controls key input, FL tube display, remote control signal input, level meter (IC102), EEP-ROM (IC103) and SIRCS/AU BUS select (IC104) according to instructions from the Main Micro-computer (IC108).

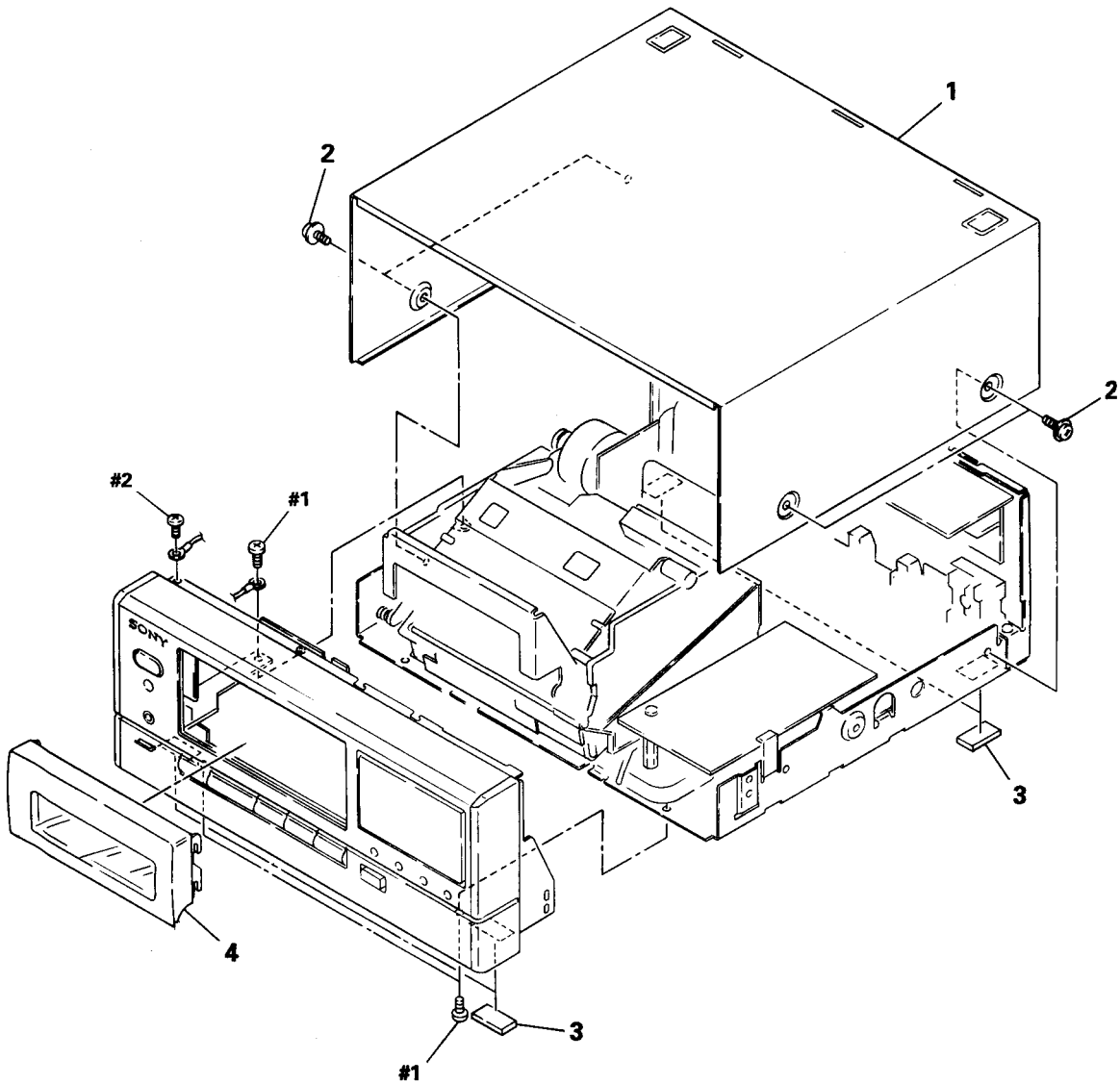
Pin No.	Pin Name	I/O	Connected to	Description
1-18	e_-v_SEG	O	FL tube FL101	FL Segment 'e'-'v'
19-28	10_-1_G	O	FL tube FL101	FL Grid #10-#1
29	$\overline{\text{DSP\_REQ}}$	I	MAIN Micon	Communication request ("L" Active)
30	TX	—	Open	Not in use
31	TEX	—	Open	Not in use
32	$\overline{\text{RST}}$	I	IC111	System Reset ("L" active)
33	NC	—		Not in use
34	V_{DD}	I		Power terminal (+5 V)
35-42	AD_0-7	I	Panel switch	Key input A/D converter input #0 - #7
43	NC	—		Not in use
44	DISP_CK	O	MAIN Micon	Shift clock
45	SO	O	MAIN Micon	Serial data OUT
46	SI	I	MAIN Micon	Serial data IN
47	$\overline{\text{DSP\_ACK}}$	O	MAIN Micon	Acknowledge (Active"L")
48	REC_MODE	I	S703	REC MODE "H": Standard, "L": Long
49	$\overline{\text{TEST}}$	I	Pull-up	Test mode (Active "L")
50	$\overline{\text{CLOCK\_SET}}$	I	SW290	CLOCK SET switch S704 (Active "L")
51-54	LVL_DT_0-3	I/O	Level Meter IC	Level Meter Data 0-3
55, 56	LVL_ADRS_0, 1	O	Level Meter IC	Level Meter Data 0, 1
57	$\overline{\text{LVL\_RD}}$	O	Level Meter IC	Level Meter Read Mode (Active "L")
58	$\overline{\text{LVL\_WR}}$	O	Level Meter IC	Level Meter Write Mode (Active "L")
59	$\overline{\text{LVL\_SEL}}$	O	Level Meter IC	Level Meter IC Select (Active "L")
60	S/A SW	O	IC104	Select of SIRCS/AU BUS "H" : AU BUS "L" : SIRCS
61	AU BK	I	AU BUS	AU BUS signal detecting input
62	RMC	I	IC104	SIRCS/AU BUS input
63	RMC_CAT	I	Pull-down	Remote control category "L": DAT1, "H": DAT2. Fixed at "L" with the equipment.
64	$\overline{\text{TR\_MUTE}}$	I	IC104	Level meter mute (Active "L")
65	$\overline{\text{BUSY}}$	I	EEPROM	BUSY signal (Active "L")
66	ROM_DT_IN	I	EEPROM	Data input
67	ROM_DT_OUT	O	EEPROM	Data output
68	$\overline{\text{SHIFT\_CK}}$	O	EEPROM	Shift clock " " : Output to EEPROM, " " : Input from EEPROM
69	$\overline{\text{CE}}$	O	EEPROM	Chip enable
70	AU BUS	O	AU BUS	AU BUS output
71	Vss	I		Power terminal (GND)
72	XTAL	—	Ceramic oscillator	
73	NC	—	Open	Not in use
74	EXTAL	I	Ceramic oscillator	4.19MHz ceramic oscillator
75	Vref	I	+5 V	Analog board reference voltage
76	Vfdp	I	–25 V	FL display tube driving voltage
77-80	a_-d_SEG	O	FL tube(FL101)	FL Segment 'a'-'d'

SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB,BALANCE(WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware(# mark) list is given in the last of this parts list.
- G : Germany model

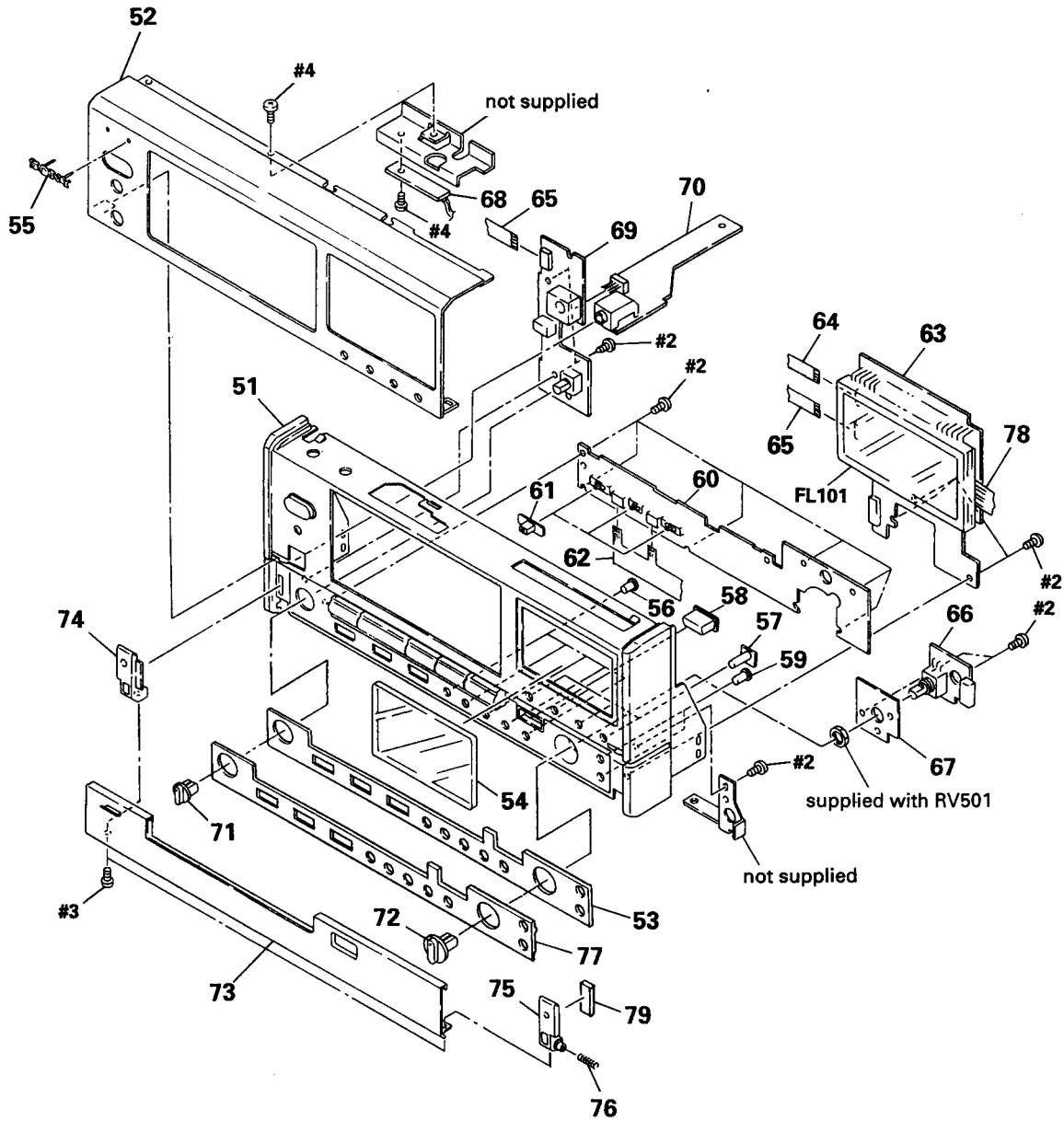
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET SECTION



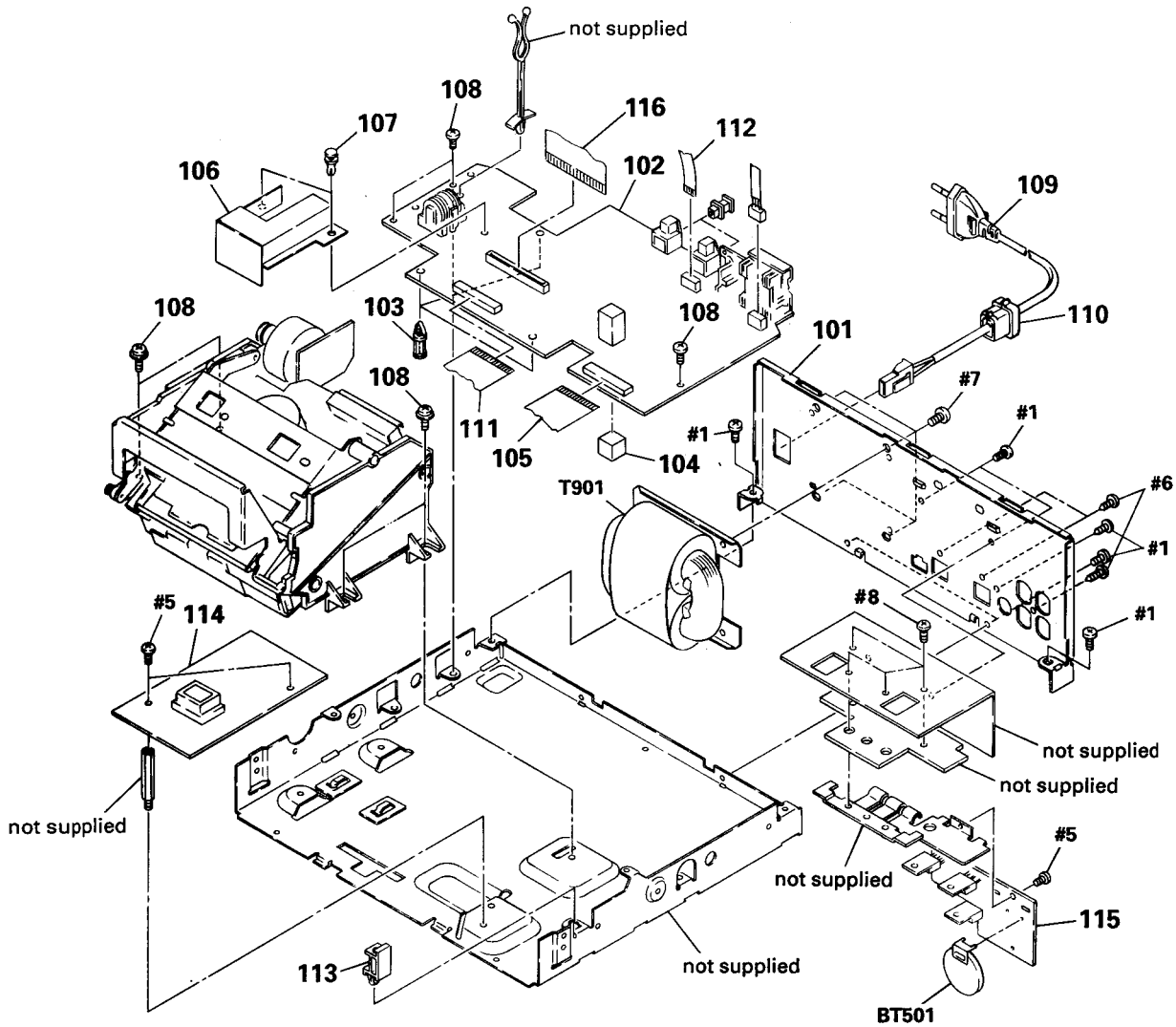
Ref. No.	Part No.	Description	Remarks
1	* 3-373-244-01	CASE	
2	3-363-099-01	SCREW (CASE +3X8 TP2)	
3	4-930-336-01	FOOT (FELT)	
4	A-2003-976-A	WINDOW ASSY, CASSETTE	

5-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remarks
51	X-3363-748-1	PANEL (BASE) ASSY	
52	3-373-238-01	PANEL, FRONT	
53	3-373-228-01	SHEET (CONTROL)	
54	3-373-204-01	WINDOW (FL)	
55	4-942-636-01	EMBLEM (NO.3.5), SONY	
56	3-373-226-01	BUTTON (ID)	
57	3-373-227-01	BUTTON (FF/REW)	
58	3-373-207-01	BUTTON (O/C)	
59	3-373-200-01	BUTTON (COUNTER)	
60	* 1-641-470-11	SW (CONTROL) BOARD	
61	3-373-201-01	KNOB (SLIDE)	
62	1-641-493-11	PC BOARD, FLEXIBLE (A) (9 CORE)	
63	* A-2006-592-A	FL BOARD, COMPLETE	
64	1-690-398-11	WIRE, FLAT TYPE (E) (6 CORE)	
65	1-690-400-11	WIRE, FLAT TYPE (G) (5 CORE)	
66	* 1-641-473-11	REC VOL BOARD	
67	3-373-209-01	BRACKET (REC)	
68	* 1-641-475-11	LED BOARD	
69	* 1-641-472-11	REMOTE CONTROL BOARD	
70	* 1-641-474-11	HEADPHONE BOARD	
71	3-373-202-01	KNOB (H.P.)	
72	3-373-203-01	KNOB (REC)	
73	3-373-239-01	LID (CONTROL PANEL)	
74	3-373-206-01	LID (BASE R)	
75	3-373-205-01	LID (BASE L)	
76	3-374-768-01	SPRING (LID), COMPRESSION	
77	3-373-240-01	LID (BASE)	
78	1-641-494-11	PC BOARD, FLEXIBLE (B) (14 CORE)	
79	3-373-208-01	BRACKET (LID)	
FL101	1-519-694-11	INDICATOR TUBE, FLUORESCENT	

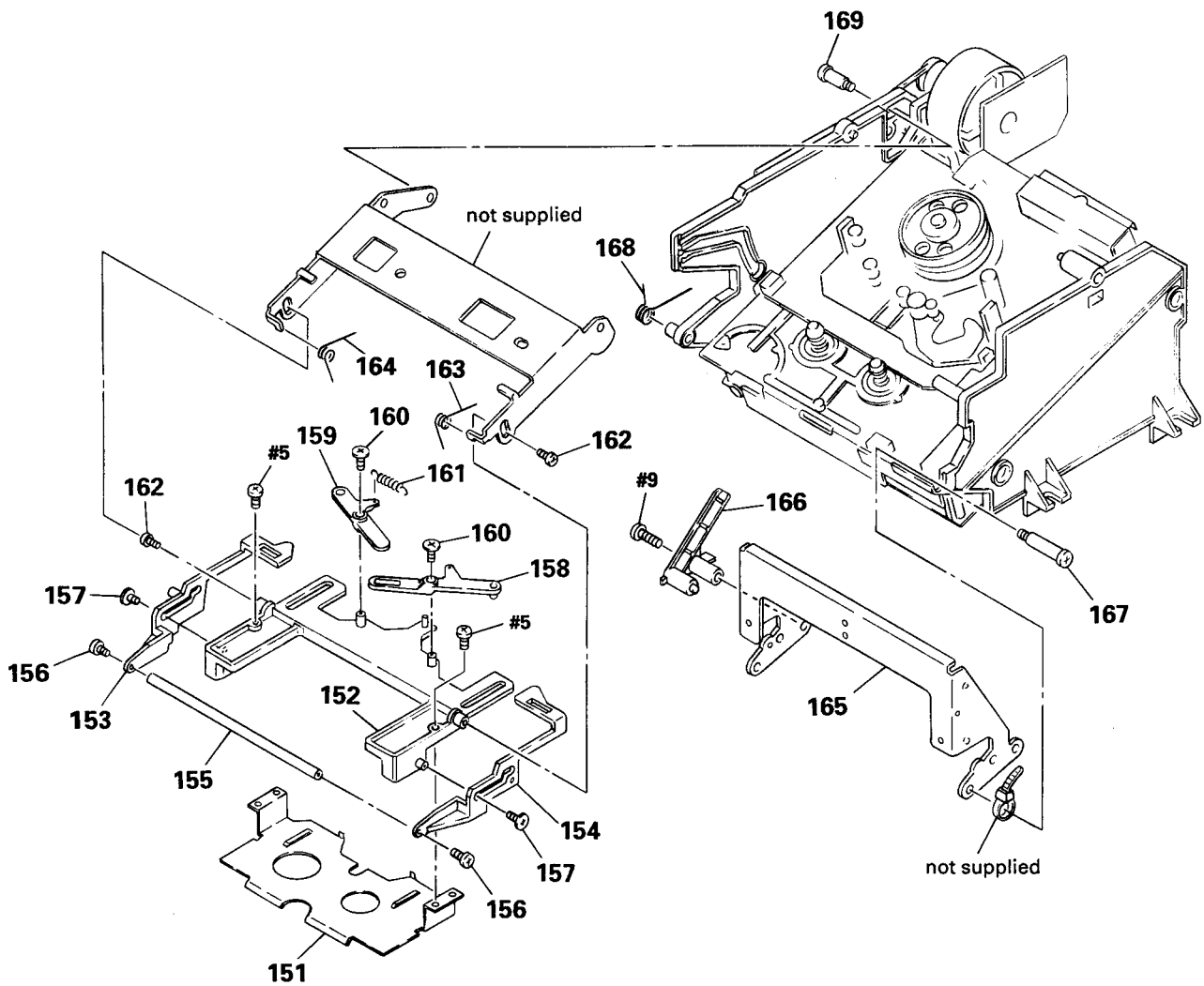
5-3. CHASSIS SECTION



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

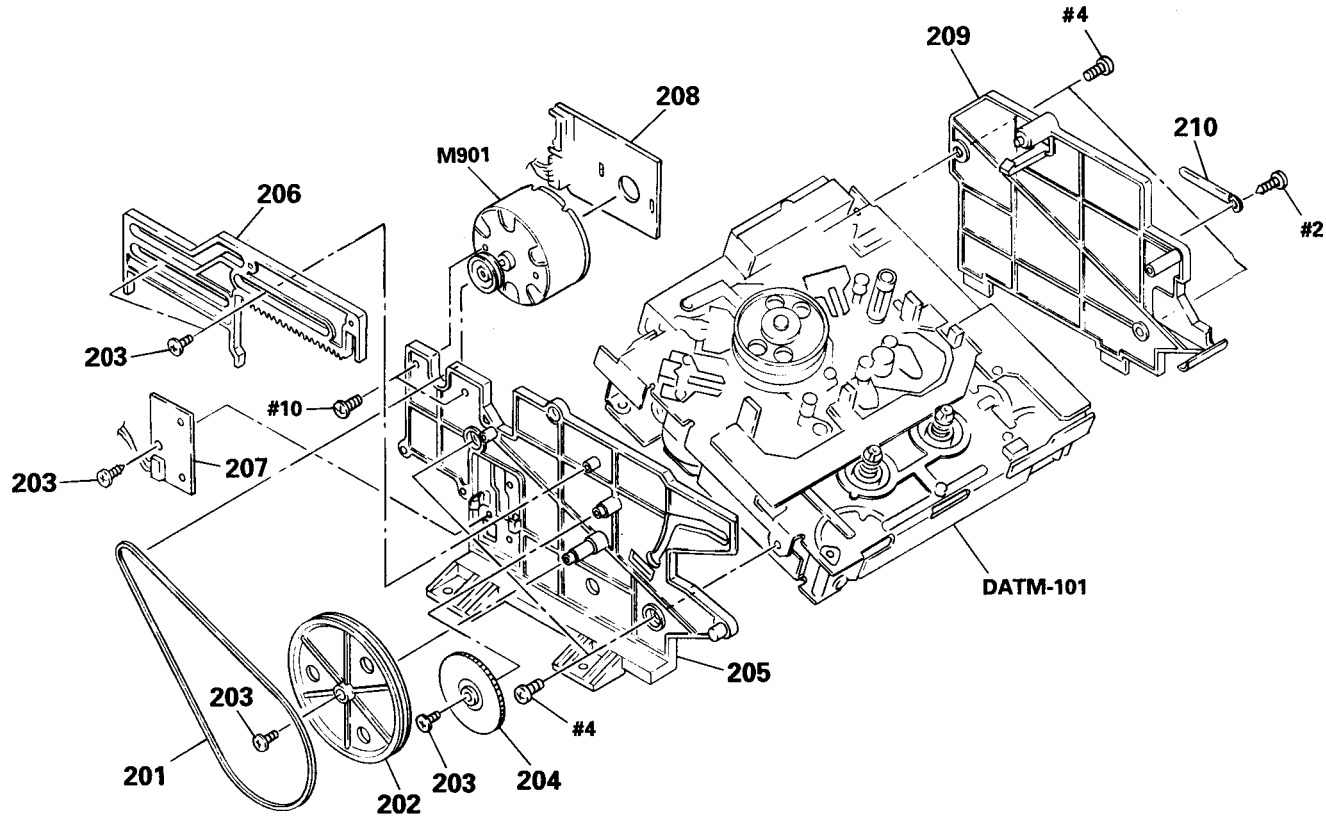
Ref. No.	Part No.	Description	Remarks
101	* 3-370-904-01	PANEL, BACK (UK)	
101	* 3-370-904-11	PANEL, BACK (AEP, G)	
102	* A-2006-636-A	P/A (A) BOARD, COMPLETE (AEP)	
102	* A-2006-674-A	P/S (A) BOARD, COMPLETE (UK)	
102	* A-2006-679-A	P/A (A) BOARD, COMPLETE (G)	
103	* 3-669-610-00	SPACER	
104	* 4-931-121-11	CUSHION (TR)	
105	1-690-394-11	WIRE, FLAT TYPE (A) (26 CORE)	
106	* 3-373-197-01	COVER (POWER)	
107	4-812-134-11	RIVET NYLON, 3.5	
108	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6	
109 ⚠	1-558-946-21	CORD, POWER (UK)	
109 ⚠	1-575-651-21	CORD, POWER (AEP, G)	
110	* 3-703-244-00	BUSHING (2104), CORD	
111	1-690-399-11	WIRE, FLAT TYPE (F) (30 CORE)	
112	1-690-397-11	WIRE, FLAT TYPE (D) (7 CORE)	
113	* 4-349-978-00	HOLDER, PC BOARD	
114	* A-2006-595-A	MAIN (A) BOARD, COMPLETE	
115	* 1-641-484-11	REG BOARD	
116	1-690-395-11	WIRE, FLAT TYPE (B) (30 CORE)	
BT501 ⚠	* 1-528-229-11	BATTERY, LITHIUM (CR-2450)	
T901 ⚠	1-450-655-11	TRANSFORMER, POWER (AEP, G)	
T901 ⚠	1-450-656-11	TRANSFORMER, POWER (UK)	

5-4 MECHANISM SECTION 1



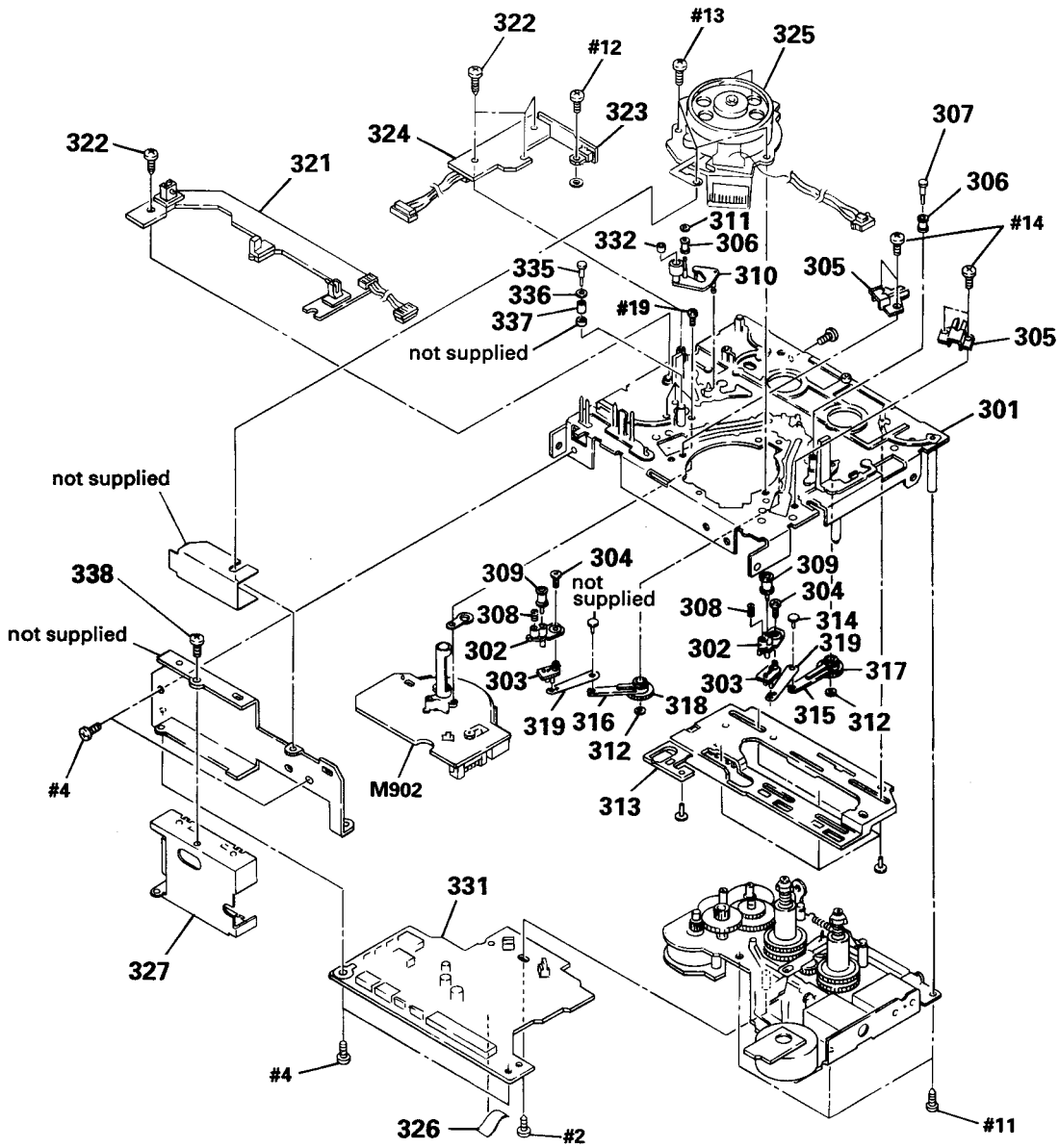
Ref. No.	Part No.	Description	Remarks
151	3-373-224-01	HOLDER (LOWER)	
152	3-373-237-01	HOLDER (UPPER), CASSETTE	
153	3-373-223-01	SLIDER (L)	
154	3-373-222-01	SLIDER (R)	
155	* 3-373-217-01	SHAFT (JOINT)	
156	3-345-648-01	SCREW (M1.4X3.0), TOOTHED LOCK	
157	3-318-201-11	SCREW (B) (1.4X3), TAPPING	
158	3-373-218-01	LEVER (R)	
159	3-373-219-01	LEVER (L)	
160	2-623-756-01	SCREW, (B1.7X3), TAPPING	
161	3-632-859-00	SPRING, BRAKE LEVER RETURN	
162	3-318-203-61	SCREW (B1.7X4), TAPPING	
163	3-373-215-01	SPRING (R), TORSION	
164	3-373-216-01	SPRING (L), TORSION	
165	3-373-225-01	HOLDER (WINDOW)	
166	3-373-220-01	ARM (JOINT)	
167	4-931-463-01	SCREW (STEP)	
168	3-373-212-01	SPRING (CASSETTE)	
169	4-931-471-01	SCREW (STEP)	

5-5. MECHANISM SECTION 2



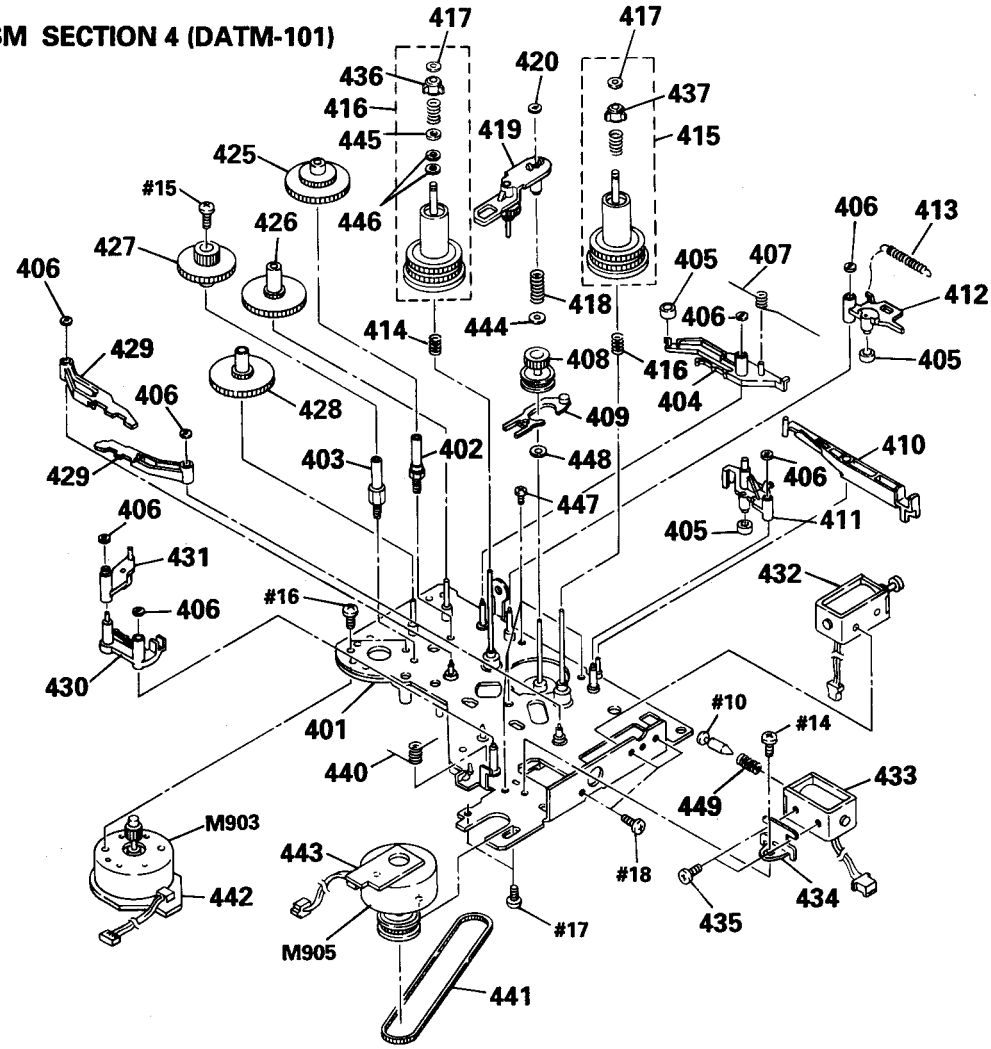
Ref. No.	Part No.	Description	Remarks
201	4-931-470-01	BELT (DRIVING)	
202	3-373-214-01	PULLEY	
203	2-623-756-01	SCREW, (B1.7X3), TAPPING	
204	3-373-213-01	GEAR, DRIVING	
205	3-373-234-02	CHASSIS (L)	
206	X-3364-426-1	SLIDER ASSY	
207	* 1-641-487-11	SW BOARD	
208	* 1-641-486-11	MOTOR BOARD	
209	* 3-373-235-01	CHASSIS (R)	
210	3-703-150-11	STOPPER, WIRING	
M901	A-2003-910-A	MOTOR ASSY, CASSETTE (CASSETTE COMPARTMENT)	

5-6. MECHANISM SECTION 3 (DATM-101)



Ref. No.	Part No.	Description	Remarks
301	* 3-368-462-01	CHSSIS (OUTSERT), MECHANIAL	
302	* 3-368-390-01	BASE (#1 GUIDE)	
303	3-368-409-01	JOINT (#1 GUIDE)	
304	3-368-413-01	SCREW, +P (1) B1.4X2.5	
305	* 3-368-442-01	CATCHER	
306	3-368-399-01	GUIDE, ROLLER	
307	3-368-428-01	SHAFT (ROLLER GUIDE)	
308	3-368-436-01	SPRING (#1 GUIDE), COMPRESSION	
309	X-3337-643-1	GUIDE (RIC) ASSY, ROLLER	
310	X-3363-025-1	PINCH (LEVER) ASSY	
311	3-315-384-31	WASHER, STOPPER	
312	3-368-398-01	BUSHING	
313	* A-2003-708-A	SLIDER ASSY, CAM	
315	3-368-427-01	LEVER (LOAD-T)	
316	3-368-426-01	LEVER (LOAD-S)	
317	3-368-444-01	GEAR (LOAD-T)	
318	3-368-443-01	GEAR (LOAD-S)	
319	3-368-415-01	SHAFT (LOAD LEVER JOINT)	
321	* 1-639-305-11	TOP END SENSOR BOARD	
322	3-372-761-01	SCREW (M1.7X4), TAPPING	
323	* 1-639-301-11	RGN SW BOARD	
324	* 1-639-306-11	CAM SLIDER BOARD	
325	8-848-567-11	DRUM ASSY DOU-03A	
326	9-911-835-XX	SPACER	
327	* A-2001-587-A	RF COMPLETE ASSY	
331	* A-2056-488-A	DRUM DRIVE BOARD, COMPLETE	
332	3-337-626-01	CAP, PINCH ROLLER	
335	3-375-209-01	SHAFT (FIXED GUIDE)	
336	3-337-677-01	FLANGE	
337	3-337-676-01	GUIDE, FIXED	
338	3-703-685-21	SCREW (+BV 3X8)	
M902	8-835-361-01	MOTOR, DC U-17B (CAPSTAN)	

5-7. MECHANISM SECTION 4 (DATM-101)



Ref. No.		Part No.	Description	Remarks
401	*	A-2003-857-A	CHASSIS (REEL) ASSY	
402	*	3-368-420-01	SHAFT (CAM DRIVE GEAR C)	
403	*	3-368-419-01	SHAFT (CAM DRIVE GEAR D)	
404	*	3-368-455-01	LEVER (GEAR LOCK)	
405		3-368-418-01	TUBE (BREAK)	
406		3-368-398-01	BUSHING	
407		3-368-430-01	SPRING (GEAR LOCK)	
408		X-3363-022-1	GEAR (REEL DRIVE) ASSY	
409	*	3-368-411-01	SLIDER (REEL LOCK)	
410	*	3-368-453-01	LEVER (BRAKE SOLENOID)	
411	*	3-368-447-01	LEVER (BRAKE S)	
412	*	3-368-446-01	LEVER (BRAKE T)	
413		3-368-438-01	SPRING (BREAK), TENSION	
414		3-368-432-01	SPRING (FF/REW), COMPRESSION	
415		A-2003-709-C	TABLE (S) ASSY, REEL	
416		A-2003-710-B	TABLE (T) ASSY, REEL	
418		3-368-435-01	SPRING (FR LEVER), COMPRESSION	
419		X-3364-581-1	LEVER (F/R) ASSY	
420		3-315-384-31	WASHER, STOPPER	
425		3-368-421-01	GEAR (CAM DRIVE C)	
426		3-368-402-01	GEAR (CAM DRIVE A, B)	
427		3-368-403-01	GEAR (CAM DRIVE D)	
428		3-373-039-01	GEAR (CAM DRIVE B)	
429		X-3363-024-1	LEVER (BT) ASSY	
430	*	3-368-451-01	LEVER (BT SOLENOID)	
431	*	3-368-454-01	LEVER (BT SELECTION)	
432		1-454-535-11	SOLENOID, PLUNGER	
433		1-454-536-11	SOLENOID, PLUNGER	
434	*	3-368-416-01	BRACKET (B.T SOLENOID)	
435		3-368-423-01	SCREW (M2.6), STEP	
436		2-623-736-01	CLAW (C) (LEFT), REEL	
437		2-623-752-01	CLAW (C) (RIGHT), REEL	
440		3-368-431-01	SPRING (B.T SOLENOID)	
441		3-368-417-01	BELT (170TN10-1.0T), TIMING	
442	*	1-639-303-11	CAM MOTOR BOARD	
443	*	1-639-304-11	REEL MOTOR BOARD	
444		3-738-212-21	RETAINER, THRUST, REEL TABLE	
445		3-701-443-11	WASHER	
446		3-701-443-21	WASHER, 5 DIA.	
447		2-623-756-01	SCREW, (B1.7X3), TAPPING	
448		3-701-436-01	WASHER, 1.6	
449		3-370-480-01	SPRING (BT), COMPRESSION	
M903		X-3363-109-1	MOTOR (CAM) ASSY	
M905		X-3363-110-1	MOTOR (REEL) ASSY	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- G : Germany model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

CAM MOTOR | CAM SLIDER | SW(CONTROL) | DRUM DRIVE

Ref. No.	Part No.	Description				Remarks
	* 1-639-303-11	CAM MOTOR BOARD				
		**********				
		⟨ CAPACITOR ⟩				
C06	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V	
		**********				
	* 1-639-306-11	CAM SLIDER BOARD				
		**********				
		⟨ CHIP JUMPER ⟩				
JW04	1-216-296-00	METAL CHIP	0	5%	1/8W	
JW05	1-216-296-00	METAL CHIP	0	5%	1/8W	
		⟨ SWITCH ⟩				
SW1	1-570-953-11	SWITCH, PUSH (1 KEY) (STOP DET)				
SW2	1-570-953-11	SWITCH, PUSH (1 KEY) (FWD DET)				
		**********				
	* 1-641-470-11	SW (CONTROL) BOARD				
		**********				
		⟨ CONNECTOR ⟩				
CN201	1-580-438-21	CONNECTOR, FPC 4P				
CN202	1-569-806-21	CONNECTOR, FPC 5P				
		⟨ RESISTOR ⟩				
R201	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R202	1-216-076-00	METAL GLAZE	13K	5%	1/10W	
R203	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R204	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R205	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R206	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R207	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R208	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R209	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R210	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R211	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R212	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R213	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R214	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R215	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R216	1-216-079-00	METAL CHIP	18K	5%	1/10W	
		⟨ SWITCH ⟩				
SW211	1-572-921-11	SWITCH, KEY BOARD (WRITE)				
SW212	1-572-921-11	SWITCH, KEY BOARD (ERACE)				
SW220	1-570-724-11	SWITCH, SLIDE (INPUT)				
SW230	1-570-724-11	SWITCH, SLIDE (TIMER)				
SW232	1-572-921-11	SWITCH, KEY BOARD (RESET)				
SW233	1-572-921-11	SWITCH, KEY BOARD (MODE)				
SW251	1-572-921-11	SWITCH, KEY BOARD (AUTO)				
SW252	1-572-921-11	SWITCH, KEY BOARD (RENUMBER)				
SW261	1-572-921-11	SWITCH, KEY BOARD (◀◀)				
SW262	1-572-921-11	SWITCH, KEY BOARD (▶▶)				
SW263	1-572-921-11	SWITCH, KEY BOARD (REC)				
SW264	1-572-921-11	SWITCH, KEY BOARD (PAUSE)				
SW265	1-572-921-11	SWITCH, KEY BOARD (REC MUTE)				
SW271	1-572-921-11	SWITCH, KEY BOARD (⏏)				
SW272	1-572-921-11	SWITCH, KEY BOARD (STOP)				
SW273	1-572-921-11	SWITCH, KEY BOARD (PLAY)				
SW274	1-572-921-11	SWITCH, KEY BOARD (|◁◁)				
SW275	1-572-921-11	SWITCH, KEY BOARD (▷▷|)				
SW280	1-553-977-00	SWITCH, SLIDE (REC MODE)				
SW290	1-572-921-11	SWITCH, KEY BOARD (CLOCK SET)				
		**********				
	* A-2056-488-A	DRUM DRIVE BOARD, COMPLETE				
		**********				
	* 3-343-491-01	HOLDER (S SENSOR B)				
	4-870-539-00	PLATE, GROUND				
		⟨ CAPACITOR ⟩				
C01	1-124-584-00	ELECT	100uF	20%	10V	
C02	1-126-157-11	ELECT	10uF	20%	16V	
C03	1-124-257-00	ELECT	2.2uF	20%	50V	
C04	1-163-013-11	CERAMIC CHIP	0.0022uF	5%	50V	
C05	1-163-013-11	CERAMIC CHIP	0.0022uF	5%	50V	

DRUM DRIVE FL

Ref. No.	Part No.	Description			Remarks
C08	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C21	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C31	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
		⟨ CONNECTOR ⟩			
CN01	* 1-564-704-11	PIN, CONNECTOR (SMALL TYPE)		2P	
CN02	* 1-564-704-11	PIN, CONNECTOR (SMALL TYPE)		2P	
CN03	* 1-564-338-00	PIN, CONNECTOR		4P	
CN04	* 1-564-336-00	PIN, CONNECTOR		2P	
CN05	* 1-564-336-61	PIN, CONNECTOR		2P	
CN06	* 1-564-339-00	PIN, CONNECTOR		5P	
CN07	1-564-721-11	PIN, CONNECTOR (SMALL TYPE)		5P	
CN08	* 1-568-872-11	SOCKET, CONNECTOR		30P	
CN09	* 1-564-706-11	PIN, CONNECTOR (SMALL TYPE)		4P	
CN10	* 1-564-719-11	PIN, CONNECTOR (SMALL TYPE)		3P	
		⟨ IC ⟩			
IC01	8-759-107-68	IC CX20115A			
IC02	8-759-502-80	IC LM358M			
IC03	8-759-502-80	IC LM358M			
		⟨ CHIP JUMPER ⟩			
JW06	1-216-296-00	METAL CHIP	0	5%	1/8W
JW07	1-216-296-00	METAL CHIP	0	5%	1/8W
JW08	1-216-296-00	METAL CHIP	0	5%	1/8W
JW09	1-216-296-00	METAL CHIP	0	5%	1/8W
JW10	1-216-296-00	METAL CHIP	0	5%	1/8W
JW11	1-216-296-00	METAL CHIP	0	5%	1/8W
JW12	1-216-296-00	METAL CHIP	0	5%	1/8W
JW13	1-216-296-00	METAL CHIP	0	5%	1/8W
JW14	1-216-296-00	METAL CHIP	0	5%	1/8W
JW15	1-216-296-00	METAL CHIP	0	5%	1/8W
JW16	1-216-296-00	METAL CHIP	0	5%	1/8W
JW17	1-216-296-00	METAL CHIP	0	5%	1/8W
JW18	1-216-296-00	METAL CHIP	0	5%	1/8W
JW19	1-216-296-00	METAL CHIP	0	5%	1/8W
JW20	1-216-296-00	METAL CHIP	0	5%	1/8W
JW21	1-216-296-00	METAL CHIP	0	5%	1/8W
JW22	1-216-296-00	METAL CHIP	0	5%	1/8W
JW23	1-216-296-00	METAL CHIP	0	5%	1/8W
JW24	1-216-296-00	METAL CHIP	0	5%	1/8W
JW25	1-216-296-00	METAL CHIP	0	5%	1/8W
JW26	1-216-296-00	METAL CHIP	0	5%	1/8W
JW27	1-216-296-00	METAL CHIP	0	5%	1/8W
JW28	1-216-296-00	METAL CHIP	0	5%	1/8W
JW29	1-216-296-00	METAL CHIP	0	5%	1/8W
JW30	1-216-296-00	METAL CHIP	0	5%	1/8W
		⟨ PHOTO INTERUPTER ⟩			
PH01	8-719-939-23	DIODE GP2S09-C			
PH02	8-719-939-23	DIODE GP2S09-C			
		⟨ TRANSISTOR ⟩			
Q01	8-729-100-66	TRANSISTOR 2SC1623-L6			
Q02	8-729-101-07	TRANSISTOR 2SB798-DL			
		⟨ RESISTOR ⟩			
R01	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R02	1-216-075-00	METAL CHIP	12K	5%	1/10W
R03	1-216-029-00	METAL CHIP	150	5%	1/10W
R04	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R05	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R06	1-216-085-00	METAL CHIP	33K	5%	1/10W
R07	1-216-025-00	METAL CHIP	100	5%	1/10W
R08	1-216-049-00	METAL CHIP	1K	5%	1/10W
R09	1-216-073-00	METAL CHIP	10K	5%	1/10W
R10	1-216-073-00	METAL CHIP	10K	5%	1/10W
R11	1-216-073-00	METAL CHIP	10K	5%	1/10W
R12	1-216-089-00	METAL CHIP	47K	5%	1/10W
R13	1-216-073-00	METAL CHIP	10K	5%	1/10W
R14	1-216-037-00	METAL CHIP	330	5%	1/10W
R21	1-216-073-00	METAL CHIP	10K	5%	1/10W
R22	1-216-081-00	METAL CHIP	22K	5%	1/10W
R23	1-216-077-00	METAL CHIP	15K	5%	1/10W
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R25	1-216-103-00	METAL CHIP	180K	5%	1/10W
R26	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R31	1-216-073-00	METAL CHIP	10K	5%	1/10W
R32	1-216-081-00	METAL CHIP	22K	5%	1/10W
R35	1-216-103-00	METAL CHIP	180K	5%	1/10W
R36	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

****

* A-2006-592-A FL BOARD, COMPLETE
****

* 3-373-233-01 HOLDER (FL)

⟨ CAPACITOR ⟩

C101	1-135-125-21	TANTAL. CHIP	33uF	20%	6.3V
C102	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C103	1-135-159-21	TANTALUM CHIP	10uF	10%	20V
C104	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C105	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C106	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C107	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C108	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C109	1-135-125-21	TANTAL. CHIP	33uF	20%	6.3V
C110	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C112	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C113	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C114	1-163-031-11	CERAMIC CHIP	0.01uF		50V

⟨ CONNECTOR ⟩

CN101	1-565-770-11	CONNECTOR, FPC (1.0MM)

When indicating parts by reference number, please include the board name.

FL

Ref. No.	Part No.	Description	Remarks
CN102	1-580-868-11	SOCKET, CONNECTOR (SMT) 14P	
CN103	1-569-806-21	CONNECTOR, FPC 5P	
CN104	1-691-133-11	SOCKET, CONNECTOR 9P	
		〈 INDICATOR 〉	
FL101	1-519-694-11	INDICATOR TUBE, FLUORESCENT	
		〈 IC 〉	
IC101	8-752-832-58	IC CXP50112-258Q	
IC102	8-759-500-05	IC MSM6338MS-K	
IC103	8-752-326-33	IC CXK1011M	
IC104	8-759-927-46	IC SN74HC00ANS	
		〈 TRANSISTOR 〉	
Q130	8-729-901-04	TRANSISTOR DTA114EK	
Q131	8-729-901-01	TRANSISTOR DTC144EK	
Q132	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q181	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q182	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q183	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q184	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q185	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q186	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q187	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q188	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q189	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q190	8-729-100-66	TRANSISTOR 2SC1623-L6	
		〈 RESISTOR 〉	
R101	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R102	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R103	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R104	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R105	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R106	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R107	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R108	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R109	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R110	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R111	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R112	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R113	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R115	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R116	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R117	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R118	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R119	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R121	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R122	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R123	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R124	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R125	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R126	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R127	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R128	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R129	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R130	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R131	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R132	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R135	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R136	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R141	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R142	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R151	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R152	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R153	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R154	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R155	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R156	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R157	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R158	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R159	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R160	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R161	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R162	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R163	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R164	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R165	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R166	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R167	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R168	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R169	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R170	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R171	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R172	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R181	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R182	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R183	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R184	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R185	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R186	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R187	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R188	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R189	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R190	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R191	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R192	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R193	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R194	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R195	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R196	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R197	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R198	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R199	1-216-089-00	METAL CHIP 47K 5% 1/10W	

When indicating parts by reference number, please include the board name.

FL HEADPHONE LED MAIN(A)

Ref. No.	Part No.	Description				Remarks
R200	1-216-089-00	METAL CHIP	47K	5%	1/10W	
		〈 CRYSTAL 〉				
X101	1-567-775-11	VIBRATOR, CERAMIC (4.19MHz)				
**********						
*	1-641-474-11	HEADPHONE BOARD				
		**********				
		〈 CAPACITOR 〉				
C401	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C402	1-124-779-00	ELECT CHIP	10uF	20%	16v	
C403	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C451	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C452	1-124-779-00	ELECT CHIP	10uF	20%	16v	
C453	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
		〈 CONNECTOR 〉				
CN401	1-573-069-11	SOCKET, CONNECTOR			7P	
CN402 *	1-568-453-11	PIN, CONNECTOR (PC BOARD)			4P	
		〈 DIODE 〉				
D401	8-719-210-33	DIODE EC10DS2				
D451	8-719-210-33	DIODE EC10DS2				
		〈 IC 〉				
IC401	8-759-981-XX	IC RC4560M				
		〈 JACK 〉				
J401	1-562-837-21	JACK (HEADPHONES)				
		〈 RESISTOR 〉				
R402	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R403	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R404	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R405	1-216-182-00	METAL GLAZE	220	5%	1/8W	
R452	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R453	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R454	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R455	1-216-182-00	METAL GLAZE	220	5%	1/8W	
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*	1-641-475-11	LED BOARD				
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		〈 DIODE 〉				
D601	8-719-023-03	DIODE LN1461C				
D602	8-719-023-03	DIODE LN1461C				
D603	8-719-023-03	DIODE LN1461C				
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Ref. No.	Part No.	Description				Remarks
*	A-2006-595-A	MAIN (A) BOARD, COMPLETE				
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		〈 CAPACITOR 〉				
C101	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C102	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C103	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C104	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C105	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	
C106	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	
C107	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C108	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C109	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C110	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C111	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C112	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	
C113	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C114	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C115	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	
C116	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	
C117	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	
C118	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C119	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	
C120	1-126-193-11	ELECT	1uF	20%	50V	
C121	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C122	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C123	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C124	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C125	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C126	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C128	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	
C129	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	
C130	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C131	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C132	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C133	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C134	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C135	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C136	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C137	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C138	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
		〈 CONNECTOR 〉				
CN102 *	1-566-207-11	PIN, CONNECTOR (PC BOARD)			14P	
CN103	1-569-532-11	HOUSING, CONNECTOR			3P	
CN105	1-580-868-11	SOCKET, CONNECTOR (SMT)			14P	
		〈 IC 〉				
IC101	8-752-339-43	IC CXD2601AQ				
IC102	8-752-337-80	IC CXK58257AM-12L				
IC103	8-759-927-29	IC SN74HCU04ANS				
IC104	8-759-925-78	IC SN74HC10ANS				

When indicating parts by reference number, please include the board name.

MAIN(A) MOTOR P/A(A)

Ref. No.	Part No.	Description	Remarks
IC105	8-759-931-43	IC SN74LS624NS	
IC106	8-759-502-80	IC LM358M	
IC107	8-752-832-60	IC CXP80524-043Q	
IC108	8-752-832-59	IC CXP80524-044Q	
IC109	8-759-504-23	IC RF5C62	
IC110	8-759-991-19	IC PST529CMT	
IC111	8-759-507-14	IC PST529EMT	
		〈 COIL 〉	
L101	1-408-777-00	INDUCTOR CHIP 10uH	
L102	1-408-777-00	INDUCTOR CHIP 10uH	
L103	1-408-766-31	INDUCTOR CHIP 1.2uH	
L104	1-408-777-00	INDUCTOR CHIP 10uH	
		〈 TRANSISTOR 〉	
Q101	8-729-216-22	TRANSISTOR 2SA1162-G	
Q102	8-729-100-67	TRANSISTOR 2SC1623-L7	
		〈 RESISTOR 〉	
R101	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R102	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R103	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R104	1-216-817-11	METAL CHIP 470 5% 1/16W	
R105	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R106	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R107	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R108	1-216-864-11	METAL CHIP 0 5% 1/16W	
R109	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R110	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R111	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R112	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R113	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R114	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R115	1-216-809-11	METAL CHIP 100 5% 1/16W	
R116	1-218-285-11	METAL GLAZE 75 5% 1/16W	
R117	1-216-813-11	METAL CHIP 220 5% 1/16W	
R118	1-216-813-11	METAL CHIP 220 5% 1/16W	
R119	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R120	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R121	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R122	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R123	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R124	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R125	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R126	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R127	1-216-817-11	METAL CHIP 470 5% 1/16W	
R128	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R129	1-216-817-11	METAL CHIP 470 5% 1/16W	
R130	1-216-817-11	METAL CHIP 470 5% 1/16W	
R131	1-216-817-11	METAL CHIP 470 5% 1/16W	
R132	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R133	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R134	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R135	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R136	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R137	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R138	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R139	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R140	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R141	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R142	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R143	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R144	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R145	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R146	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R147	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R148	1-216-864-11	METAL CHIP 0 5% 1/16W	
R149	1-216-864-11	METAL CHIP 0 5% 1/16W	
R150	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R151	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R152	1-216-864-11	METAL CHIP 0 5% 1/16W	
R153	1-216-864-11	METAL CHIP 0 5% 1/16W	
R154	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R155	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R156	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R157	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R158	1-216-849-11	METAL CHIP 220K 5% 1/16W	
		〈 CRYSTAL 〉	
X101	1-567-816-11	VIBRATOR, CRYSTAL (18.816MHz)	
X102	1-567-815-11	VIBRATOR, CRYSTAL (22.5792MHz)	
X103	1-578-667-11	VIBRATOR, CRYSTAL (49.152MHz)	
X104	1-567-098-00	OSCILLATOR, CRYSTAL (32.768kHz)	

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* 1-641-486-11 MOTOR BOARD

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〈 CAPACITOR 〉

C1	1-162-851-11	CERAMIC 0.1MF	16V

〈 CONNECTOR 〉

CN1	* 1-564-498-11	PIN, CONNECTOR 5P
CN2	* 1-564-337-00	PIN, CONNECTOR 3P

〈 RESISTOR 〉

R1	⚠	1-249-480-11	CARBON	3.3	5%	1/2W F

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* A-2006-636-A P/A (A) BOARD, COMPLETE (AEP)
* A-2006-674-A P/A (A) BOARD, COMPLETE (UK)
* A-2006-679-A P/A (A) BOARD, COMPLETE (G)

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4-870-539-00 PLATE, GROUND

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description			Remarks
		⟨ CAPACITOR ⟩			
C101	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C102	1-136-177-00	FILM	1uF	5%	50V
C103	1-128-453-21	ELECT CHIP	47uF	20%	6.3V
C104	1-136-153-00	FILM	0.01uF	5%	50V
C110	1-136-355-11	FILM	330PF	5%	100V
C111	1-136-355-11	FILM	330PF	5%	100V
C112	1-137-505-11	FILM	220PF	5%	100V
C113	1-137-505-11	FILM	220PF	5%	100V
C114	1-137-503-11	FILM	100PF	5%	100V
C115	1-137-503-11	FILM	100PF	5%	100V
C116	1-130-477-00	MYLAR	0.0033uF	5%	50V
C117	1-130-480-00	MYLAR	0.0056uF	5%	50V
C118	1-137-505-11	FILM	220PF	5%	100V
C119	1-136-177-00	FILM	1uF	5%	50V
C120	1-136-177-00	FILM	1uF	5%	50V
C201	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C202	1-136-177-00	FILM	1uF	5%	50V
C203	1-128-453-21	ELECT CHIP	47uF	20%	6.3V
C204	1-136-153-00	FILM	0.01uF	5%	50V
C210	1-136-355-11	FILM	330PF	5%	100V
C211	1-136-355-11	FILM	330PF	5%	100V
C212	1-137-505-11	FILM	220PF	5%	100V
C213	1-137-505-11	FILM	220PF	5%	100V
C214	1-137-503-11	FILM	100PF	5%	100V
C215	1-137-503-11	FILM	100PF	5%	100V
C216	1-130-477-00	MYLAR	0.0033uF	5%	50V
C217	1-130-480-00	MYLAR	0.0056uF	5%	50V
C218	1-137-505-11	FILM	220PF	5%	100V
C219	1-136-177-00	FILM	1uF	5%	50V
C220	1-136-177-00	FILM	1uF	5%	50V
C301	1-164-346-11	CERAMIC CHIP	1uF		16V
C302	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C303	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C304	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C305	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C306	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C307	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C308	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C310	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C311	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C312	1-136-165-00	FILM	0.1uF	5%	50V
C313	1-163-986-00	CERAMIC CHIP	0.027uF	10%	25V
C314	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C315	1-163-614-91	CERAMIC CHIP	220PF	5%	50V
C401	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C402	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C405	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C406	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C407	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C408	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C410	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C412	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C415	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C417	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C420	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C421	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C423	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C424	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C426	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C427	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C428	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C429	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C430	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C431	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C432	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C433	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C434	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C435	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C436	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C437	1-124-994-11	ELECT	100uF	20%	10V
C438	1-124-994-11	ELECT	100uF	20%	10V
C439	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C440	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C441	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C442	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C443	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C450 ⚠	1-164-232-11	CERAMIC	0.01uF	20%	400V
C451 ⚠	1-161-742-00	CERAMIC	0.0022uF	20%	400V
C452 ⚠	1-161-742-00	CERAMIC	0.0022uF	20%	400V
C453 ⚠	1-161-742-00	CERAMIC	0.0022uF	20%	400V
C454 ⚠	1-161-742-00	CERAMIC	0.0022uF	20%	400V
C459	1-126-946-11	ELECT	6800uF	20%	25V
C460	1-124-122-11	ELECT	100uF	20%	50V
C461	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C462	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C463	1-124-994-11	ELECT	100uF	20%	10V
C464	1-126-966-91	ELECT	33uF	20%	50V
C465	1-126-017-11	ELECT	6800uF	20%	16V
C466	1-126-017-11	ELECT	6800uF	20%	16V
C467	1-124-994-11	ELECT	100uF	20%	10V
C468	1-124-994-11	ELECT	100uF	20%	10V
C470	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C471	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C472	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C473	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C474	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C475	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C475	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C601	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C602	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C603	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C604	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C605	1-163-986-00	CERAMIC CHIP	0.027uF	10%	25V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

P/A(A)

Ref. No.	Part No.	Description			Remarks
C606	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C607	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C608	1-163-986-00	CERAMIC CHIP	0.027uF	10%	25V
C609	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C610	1-124-779-00	ELECT CHIP	10uF	20%	16v
C611	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C612	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C613	1-124-779-00	ELECT CHIP	10uF	20%	16v
C614	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C615	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C705	1-164-159-11	CERAMIC CHIP	0.1uF		50V
C706	1-164-159-11	CERAMIC CHIP	0.1uF		50V
C707	1-164-159-11	CERAMIC CHIP	0.1uF		50V
C708	1-164-159-11	CERAMIC CHIP	0.1uF		50V
C709	1-162-294-11	CERAMIC CHIP	1000pF	10%	50V
		〈 CONNECTOR 〉			
CN101	* 1-564-708-11	PIN, CONNECTOR (SMALL TYPE)			6P
CN102	* 1-565-561-11	PIN, CONNECTOR			3P
CN103	1-573-069-11	SOCKET, CONNECTOR			7P
CN104	1-691-199-11	CONNECTOR, FPC			26P
CN401	* 1-580-230-11	PIN, CONNECTOR (PC BOARD)			3P
CN402	1-564-321-00	PIN, CONNECTOR			2P
CN403	* 1-564-512-11	PLUG, CONNECTOR			9P
CN405	1-691-123-11	SOCKET, CONNECTOR			6P
CN406	* 1-564-336-00	PIN, CONNECTOR			2P
CN601	1-569-532-11	HOUSING, CONNECTOR			30P
CN602	* 1-568-933-11	SOCKET, CONNECTOR			30P
CN603	* 1-564-706-11	PIN, CONNECTOR (SMALL TYPE)			4P
		〈 DIODE 〉			
D102	8-719-210-33	DIODE	EC10DS2		
D103	8-719-210-39	DIODE	EC10QS-04		
D104	8-719-210-33	DIODE	EC10DS2		
D105	8-719-800-76	DIODE	1SS226		
D106	8-719-800-76	DIODE	1SS226		
D301	8-719-915-30	DIODE	FC53M		
D401	8-719-312-47	DIODE	RBA-406B		
D402	8-719-312-47	DIODE	RBA-406B		
D403	8-719-210-33	DIODE	EC10DS2		
D404	8-719-210-33	DIODE	EC10DS2		
D405	8-719-210-33	DIODE	EC10DS2		
D406	8-719-109-93	DIODE	RD6.2ES-B2		
D601	8-719-210-33	DIODE	EC10DS2		
D602	8-719-210-33	DIODE	EC10DS2		
D603	8-719-210-33	DIODE	EC10DS2		
D604	8-719-210-39	DIODE	EC10QS-04		
		〈 IC 〉			
IC101	8-759-114-06	IC	uPC814G2-1		
IC102	8-759-045-15	IC	CS5339-KS		
IC103	8-759-711-58	IC	NJM78L05UA		
IC104	8-759-045-17	IC	NJM79L05UA		
IC105	8-752-342-65	IC	CXD2560M		
IC106	8-752-344-10	IC	CXD2561M-1		
IC107	8-759-711-58	IC	NJM78L05UA		
IC108	8-759-982-04	IC	RC5532M		
IC109	8-759-982-04	IC	RC5532M		
IC110	8-759-982-04	IC	RC5532M		
IC111	8-759-982-04	IC	RC5532M		
IC112	8-759-114-06	IC	uPC814G2-1		
IC114	8-749-921-11	IC	GP1F32R		
IC115	8-749-921-12	IC	GP1F32T		
IC116	8-759-927-29	IC	SN74HCU04ANS		
IC117	8-759-926-07	IC	SN74HC132NS		
IC118	8-759-242-70	IC	TC7WU04F		
IC119	8-759-502-80	IC	LM358M		
IC120	8-759-250-81	IC	TC5081AP		
IC121	8-759-242-70	IC	TC7WU04F		
IC122	8-759-926-95	IC	SN74HC4020NS		
IC123	8-759-234-20	IC	TC7S08F		
IC125	8-759-507-14	IC	PST529EMT		
IC401	8-759-600-31	IC	M5230L		
IC402	8-759-045-17	IC	NJM79L05UA		
IC601	8-759-502-82	IC	LM324M		
IC602	8-759-502-80	IC	LM358M		
IC603	8-759-823-87	IC	LB1638MTP		
IC604	8-759-823-94	IC	LB1836M		
		〈 IC LINK 〉			
ICP401	⚠1-532-844-21	LINK, IC			
ICP403	⚠1-532-839-11	LINK, IC			
ICP404	⚠1-532-839-11	LINK, IC			
		〈 JACK 〉			
J101	1-573-520-11	JACK, PIN 4P (LINE IN/LINE OUT)			
J105	1-568-750-11	JACK, PIN (1P SHIELD TYPE) (DIGITAL IN 2 COAXIAL)			
		〈 COIL 〉			
L301	1-408-777-00	INDUCTOR CHIP	10uH		
L302	1-408-777-00	INDUCTOR CHIP	10uH		
L303	1-406-438-11	COIL (OSC)			
L703	1-236-163-11	ENCAPSULATED COMPONENT			
		〈 TRANSISTOR 〉			
Q101	8-729-920-28	TRANSISTOR	FMG9		
Q102	8-729-920-28	TRANSISTOR	FMG9		
Q103	8-729-924-73	TRANSISTOR	FMA9		
Q104	8-729-107-46	TRANSISTOR	2SC3624A-L15		
Q105	8-729-107-46	TRANSISTOR	2SC3624A-L15		
Q106	8-729-805-45	TRANSISTOR	2SC3395		
Q401	8-729-820-59	TRANSISTOR	2SB1124-R		
Q402	8-729-808-40	TRANSISTOR	2SD1624-R		
Q601	8-729-921-49	TRANSISTOR	2SD1760F5-PQR		

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref. No.	Part No.	Description				Remarks
Q602	8-729-921-49	TRANSISTOR	2SD1760F5-PQR			
Q603	8-729-921-49	TRANSISTOR	2SD1760F5-PQR			
Q604	8-729-920-48	TRANSISTOR	IMH2			
Q605	8-729-820-59	TRANSISTOR	2SB1124-R			
Q606	8-729-808-40	TRANSISTOR	2SD1624-R			
		〈 RESISTOR 〉				
R101	1-216-685-11	METAL CHIP	27K	0.5%	1/10W	
R102	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R103	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R104	1-218-167-11	METAL GLAZE	330K	1%	1/10W	
R105	1-216-623-11	METAL CHIP	68	0.5%	1/10W	
R107	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W	
R108	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W	
R109	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W	
R110	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W	
R111	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R112	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R113	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R114	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R115	1-216-675-11	METAL CHIP	10K	0.5%	1/10W	
R116	1-216-675-11	METAL CHIP	10K	0.5%	1/10W	
R117	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R118	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R119	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R120	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R121	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R122	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R123	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R125	1-216-635-11	METAL CHIP	220	0.5%	1/10W	
R126	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R127	1-216-627-11	METAL CHIP	100	0.5%	1/10W	
R128	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R129	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R130	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R131	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R132	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R201	1-216-685-11	METAL CHIP	27K	0.5%	1/10W	
R202	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R203	1-216-687-11	METAL CHIP	33K	0.5%	1/10W	
R204	1-218-167-11	METAL GLAZE	330K	1%	1/10W	
R205	1-216-623-11	METAL CHIP	68	0.5%	1/10W	
R207	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W	
R208	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W	
R209	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W	
R210	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W	
R211	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R212	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R213	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R214	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R215	1-216-675-11	METAL CHIP	10K	0.5%	1/10W	
R216	1-216-675-11	METAL CHIP	10K	0.5%	1/10W	
R217	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R218	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R219	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R220	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R221	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R222	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R223	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R225	1-216-635-11	METAL CHIP	220	0.5%	1/10W	
R226	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R227	1-216-627-11	METAL CHIP	100	0.5%	1/10W	
R228	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R229	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R230	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R231	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R232	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R301	1-216-022-00	METAL CHIP	75	5%	1/10W	
R302	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R303	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R304	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R305	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R306	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R307	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R308	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R309	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R310	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R311	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R312	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R313	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R314	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R315	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R317	1-216-295-00	METAL CHIP	0	5%	1/10W	
R318	1-216-025-00	METAL CHIP	100	5%	1/10W	
R319	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R320	1-216-685-11	METAL CHIP	27K	0.5%	1/10W	
R321	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R322	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R323	1-216-001-00	METAL CHIP	10	5%	1/10W	
R324	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R327	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R328	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R329	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R401	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R402	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R403	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R404	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R405	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R406	1-216-033-00	METAL CHIP	220	5%	1/10W	
R407	1-216-033-00	METAL CHIP	220	5%	1/10W	
R408	1-216-017-00	METAL CHIP	47	5%	1/10W	
R409	1-216-017-00	METAL CHIP	47	5%	1/10W	
R410	1-216-043-00	METAL CHIP	560	5%	1/10W	
R411	1-216-043-00	METAL CHIP	560	5%	1/10W	
R412	1-216-073-00	METAL CHIP	10K	5%	1/10W	

When indicating parts by reference number, please include the board name.

P/A(A) REMOTE CONTROL REC VOL REEL MOTOR REG

Ref. No.	Part No.	Description				Remarks
R413	1-216-060-00	METAL GLAZE	3K	5%	1/10W	
R414	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R415	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R416	1-216-025-00	METAL CHIP	100	5%	1/10W	
R419 ⚠	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R430	1-216-021-00	METAL CHIP	68	5%	1/10W	
R431	1-216-021-00	METAL CHIP	68	5%	1/10W	
R432	1-216-001-00	METAL CHIP	10	5%	1/10W	
R433	1-216-295-00	METAL CHIP	0	5%	1/10W	
R439	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R601	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R602	1-216-017-00	METAL CHIP	47	5%	1/10W	
R603	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R604	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R605	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R606	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R607	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R608	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R609	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R610	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R611	1-216-017-00	METAL CHIP	47	5%	1/10W	
R612	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R613	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R614	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R615	1-216-017-00	METAL CHIP	47	5%	1/10W	
R616	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R617	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R618	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R619	1-216-017-00	METAL CHIP	47	5%	1/10W	
R620	1-216-037-00	METAL CHIP	330	5%	1/10W	
R621 ⚠	1-215-881-11	METAL OXIDE	15	5%	2W	F
R623	1-218-233-91	METAL GLAZE	47	5%	1/2W	
		⟨ RELAY ⟩				
RY101	1-515-716-11	RELAY (TQ 2-5V)				
		⟨ LINE FILTER ⟩				
T401 ⚠	1-421-915-11	COIL, LINE FILTER				
**********						
*	1-641-472-11	REMOTE CONTROL BOARD				
		**********				
		⟨ CONNECTOR ⟩				
CN301	1-569-806-21	CONNECTOR, FPC 5P				
CN302 *	1-568-450-11	HOUSING, CONNECTOR (PC BOARD) 4P				
CN303 *	1-560-061-00	PIN, CONNECTOR 3P				
CN304 *	1-560-061-00	PIN, CONNECTOR 3P				
		⟨ DIODE ⟩				
D301	8-719-301-39	LED SEL2210S-D				

Ref. No.	Part No.	Description	Remarks
		⟨ IC ⟩	
IC301	8-749-922-36	IC GP1U50XB	
		⟨ TRANSISTOR ⟩	
Q301	8-729-900-53	TRANSISTOR DTC114EK	
		⟨ RESISTOR ⟩	
R301	1-216-041-00	METAL CHIP 470 5% 1/10W	
R302	1-216-089-00	METAL CHIP 47K 5% 1/10W	
		⟨ VARIABLE RESISTOR ⟩	
RV301	1-241-734-11	RES, VER, CARBON 20K/20K (PHONE LEVEL)	
		⟨ SWITCH ⟩	
SW331	1-572-921-11	SWITCH, KEY BOARD (POWER)	
**********			
*	1-641-473-11	REC VOL BOARD	
		**********	
		⟨ CONNECTOR ⟩	
CN501 *	1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P	
		⟨ VARIABLE RESISTOR ⟩	
RV501	1-241-736-11	RES, VAR, CARBON 20K/20K (REC VOLUME)	
**********			
*	1-639-304-11	REEL MOTOR BOARD	
		**********	
		⟨ CAPACITOR ⟩	
C07	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
**********			
*	1-641-484-11	REG BOARD	
		**********	
	4-352-844-01	PIN, LEAD, COATING	
		⟨ BATTERY ⟩	
BT501 ⚠ *	1-528-229-11	BATTERY, LITHIUM (CR-2450)	
		⟨ CAPACITOR ⟩	
C501	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C502	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C503	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C504	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C505	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C506	1-163-038-00	CERAMIC CHIP 0.1uF	25V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

REG | RF AMP | RGN SW | SW | TOP END SENSOR

Ref. No.	Part No.	Description				Remarks
		〈 DIODE 〉				
D501	8-719-992-02	DIODE RB705D				
D502	8-719-992-02	DIODE RB705D				
		〈 IC 〉				
IC501	8-759-802-18	IC L780S05				
IC502	8-759-045-14	IC LM2941CT-LB03				
IC503	8-759-231-53	IC TA7805S				
		〈 RESISTOR 〉				
R501	1-216-073-00	METAL CHIP	10K	5%	1/10W	
**********						
	* A-2001-587-A	RF AMP BOARD, COMPLETE				
		**********				
		〈 CAPACITOR 〉				
C1	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C2	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	
C3	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C4	1-162-638-11	CERAMIC CHIP	1uF		16V	
C5	1-164-299-11	CERAMIC CHIP	0.22uF	10%	25V	
C6	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C7	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C8	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C9	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C10	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C11	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C12	1-164-299-11	CERAMIC CHIP	0.22uF	10%	25V	
C13	1-162-638-11	CERAMIC CHIP	1uF		16V	
C14	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C15	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C16	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C17	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C19	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C20	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V	
C21	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C22	1-126-603-11	ELECT CHIP	4.7uF	20%	35V	
C23	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	
C24	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C25	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C26	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C27	1-162-638-11	CERAMIC CHIP	1uF		16V	
C28	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
		〈 CONNECTOR 〉				
CN51	* 1-566-207-11	PIN, CONNECTOR (PC BOARD)			14P	
CN52	* 1-564-720-11	PIN, CONNECTOR (SMALL TYPE)			4P	
		〈 IC 〉				
IC1	8-752-039-01	IC CXA1364R				
		〈 COIL 〉				
L1	1-408-781-00	INDUCTOR CHIP 22uH				
L2	1-408-789-21	INDUCTOR, CHIP 100uH				
L3	1-408-781-00	INDUCTOR CHIP 22uH				
		〈 RESISTOR 〉				
R1	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R2	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R3	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R4	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R5	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R6	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R7	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R8	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R9	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R10	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R11	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R12	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R13	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R14	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R15	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R16	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R17	1-216-080-00	METAL CHIP	20K	5%	1/10W	
R18	1-216-073-00	METAL CHIP	10K	5%	1/10W	
		〈 VARIABLE RESISTOR 〉				
RV1	1-238-181-11	RES, ADJ, CERMET	4.7K			
RV2	1-238-181-11	RES, ADJ, CERMET	4.7K			
**********						
	* 1-639-301-11	RGN SW BOARD				
		**********				
		〈 SWITCH 〉				
S01	1-571-878-11	SWITCH, PUSH (2 KEY)				(CASSETTE IN/REC PROOF)
**********						
	* 1-641-487-11	SW BOARD				
		********				
	1-571-958-11	SWITCH, PUSH (1 KEY)				(CASSETTE TABLE IN/OUT)
**********						
	* 1-639-305-11	TOP END SENSOR BOARD				
		**********				
	* 3-368-456-01	HOLDER (END SENSOR LIGHT)				

When indicating parts by reference number, please include the board name.

TOP END SENSOR

Ref. No.	Part No.	Description	Remarks
	* 3-368-457-01	HOLDER (END SENSOR) (RECIEVE)	
		(DIODE)	
D01	8-719-951-03	DIODE GL-453	
		(PHOTO INTERUPTER)	
PH03	8-729-907-25	TRANSISTOR PT4850F	
PH04	8-729-907-25	TRANSISTOR PT4850F	
**********			
		MISCELLANEOUS	
		**********	
105	1-690-394-11	WIRE, FLAT TYPE (A) (26 CORE)	
109 ⚠	1-558-946-21	CORD, POWER (UK)	
109 ⚠	1-575-651-21	CORD, POWER (AEP, G)	
111	1-690-399-11	WIRE, FLAT TYPE (F) (30 CORE)	
112	1-690-397-11	WIRE, FLAT TYPE (D) (7 CORE)	
116	1-690-395-11	WIRE, FLAT TYPE (B) (30 CORE)	
325	8-848-567-11	DRUM ASSY DOU-03A	
432	1-454-535-11	SOLENOID, PLUNGER	
433	1-454-536-11	SOLENOID, PLUNGER	
62	1-641-493-11	PC BOARD, FLEXIBLE (A) (9 CORE)	
64	1-690-398-11	WIRE, FLAT TYPE (E) (6 CORE)	
65	1-690-400-11	WIRE, FLAT TYPE (G) (5 CORE)	
78	1-641-494-11	PC BOARD, FLEXIBLE (B) (14 CORE)	
M901	A-2003-910-A	MOTOR ASSY, CASSETTE	
M902	8-835-361-01	MOTOR, DC U-17B (CAPSTAN)	
M903	X-3363-109-1	MOTOR (CAM) ASSY	
M905	X-3363-110-1	MOTOR (REEL) ASSY	
T901 ⚠	1-450-655-11	TRANSFORMER, POWER (AEP, G)	
T901 ⚠	1-450-656-11	TRANSFORMER, POWER (UK)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-465-945-11	REMOTE COMMANDER (RM-D7)	
	1-559-533-11	CORD, CONNECTION	
	1-574-314-11	CORD (WITH CONNECTOR)	
	* 3-373-071-01	INDIVIDUAL CARTON	
	* 3-373-072-01	CUSHION	
	3-707-584-01	COVER, BATTERY (for RM-D7)	
	3-754-217-11	MANUAL, INSTRUCTION (English, French, Spanish, Portuguese)	
	3-754-217-41	MANUAL, INSTRUCTION (German, Dutch, Swedish, Italian)	
**********			

HARDWARE LIST

Ref. No.	Part No.	Description	Remarks
#1	7-682-547-09	SCREW +BVTT 3X6 (S)	
#2	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#3	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
#4	7-621-773-86	SCREW +B 2.6X4	
#5	7-621-772-20	SCREW +B 2X5	
#6	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#7	7-682-560-09	SCREW +BVTT 4X6 (S)	
#8	7-682-548-09	SCREW +BVTT 3X8 (S)	
#9	7-682-550-09	SCREW +B 3X12	
#10	7-627-556-17	SCREW, PRECISION +P 2.6X3 TYPE1	
#11	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
#12	7-621-772-08	SCREW +B 2X3	
#13	7-621-772-18	SCREW +B 2X4	
#14	7-621-255-20	SCREW +BVTT 2X4 (S)	
#15	7-621-255-15	SCREW +P 2X3	
#16	7-627-852-27	+P 1.7X3	
#17	7-627-552-27	SCREW, PRECISION +P 1.7X2	
#18	7-627-854-07	PRECISION SCREW +P 2X2.5 TYPE3	
#19	7-627-552-47	SCREW, PRECISION +P 1.7X4	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

9-956-682-11

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